

In This Issue—*The New Studebakers*

MOTOR AGE

Vol. XLVI
Number 12

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CHICAGO, SEPTEMBER 18, 1924

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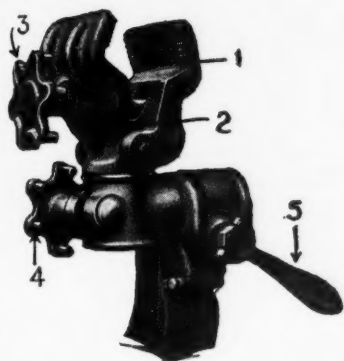
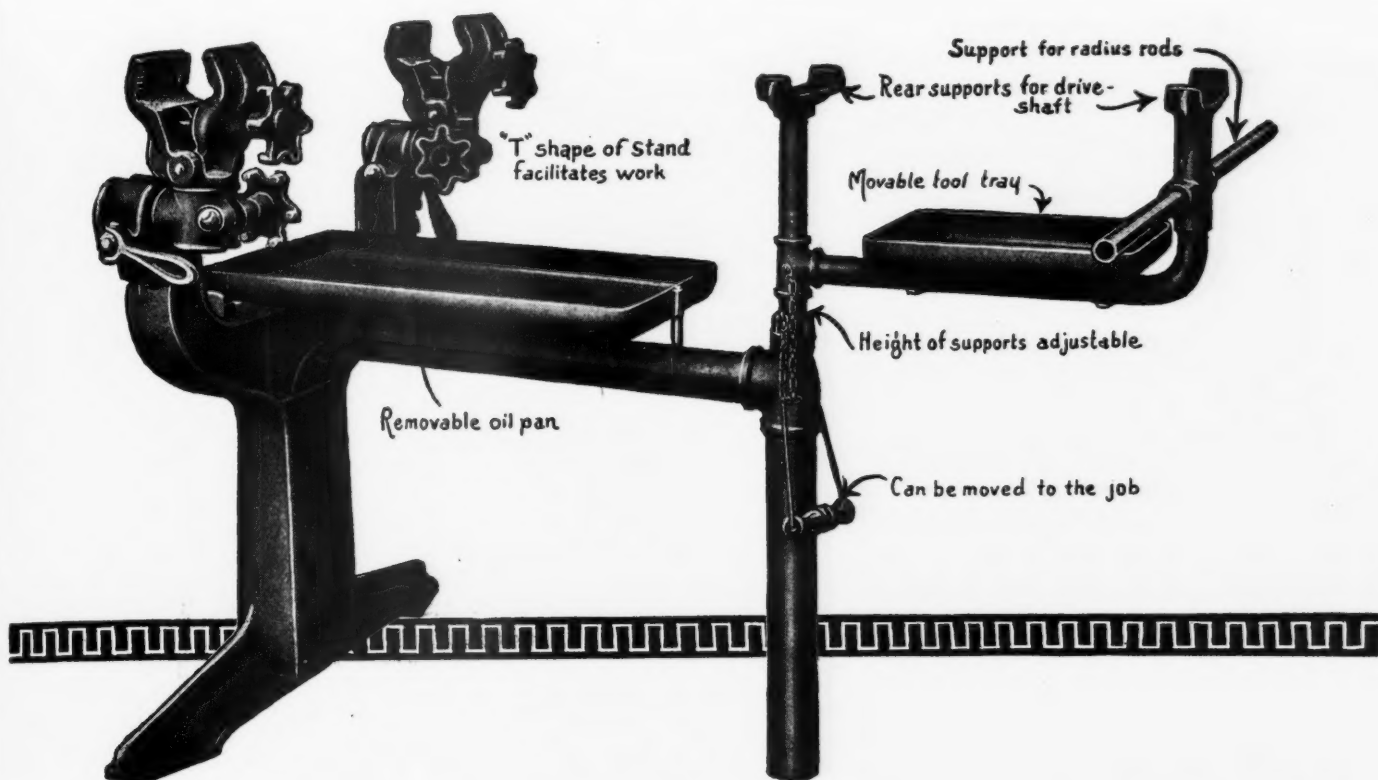
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Oil-Regulating Piston Rings

MOTOR AGE

Reg. U. S. Pat. Office

Vol. XLVI

No. 12

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Subscriptions accepted only from the Automotive Trade
Entered as Second Class Matter Sept. 19, 1899, at the Post Office at Chicago, Ill., under Act of March 3, 1879.



The "Tentacle" can be easily installed around any standard tail lamp by means of the circular band clamp.

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The "Tentacle" is an example of the preliminary study that goes into the production of Victor lamps. It may be added to the car without discarding any of the existing equipment. There are no holes to drill. Anyone can install it quickly.

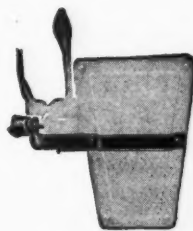
The "Tentacle" has a fifteen candle power bulb and is finished in black enamel with a nickel plated door. We recommend the use of our Victor No. 2 pedal switch on all cars except Ford.

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It is zinc-plated to prevent rust and is free from wiring troubles.



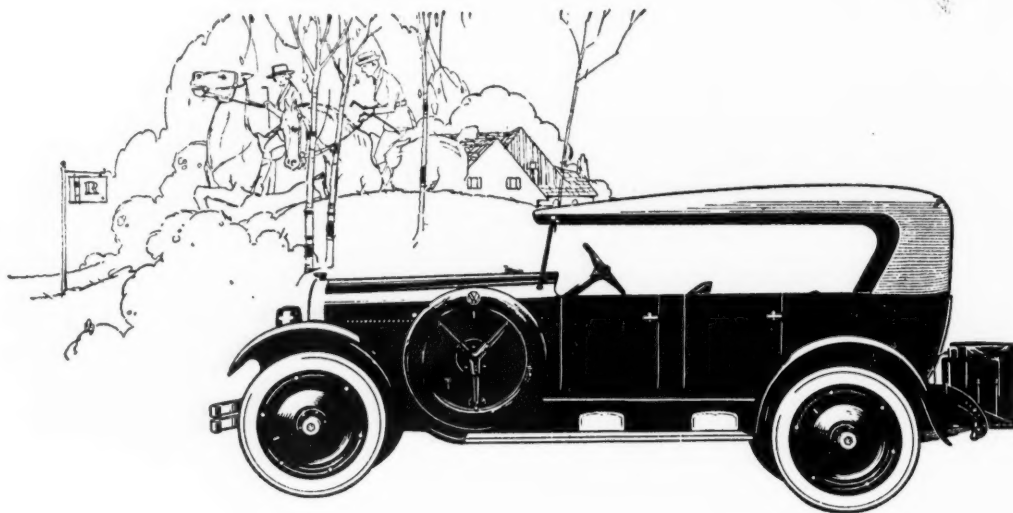
Only two screws to adjust and the "Tentacle" Stop Lamp is firmly held in position.



The No. 6 "Minute" Stop Lamp Switch for use on Ford cars.

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"The Car with a Longer Life"

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Again Studebaker establishes leadership—

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Outstanding value,
Obvious quality.

An entirely new type of car—

The steel-shaped
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to supersede the open cars.

A new STANDARD SIX— which stands superlative
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ALL over America the True Blue Oakland is becoming known as one of the best cars on earth to own.

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The driving ease and convenience of the True Blue cars—their stout-hearted gameness—the perfection of their four-wheel brakes—their ability to keep out of service stations—all these are doing their share to fasten a feeling of Oakland superiority in the public mind.

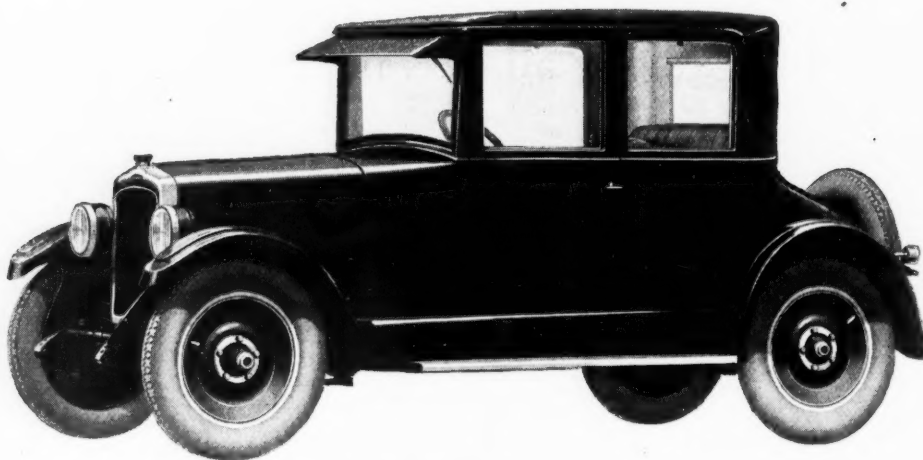
All the True Blue features that were a year ahead a year ago are year-proved today. And in the meantime, additional features have been added to keep the True Blue cars a year in advance of their field. Check Oakland features against those of any car in or near Oakland's price group.

So, True Blue means just this to you:
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*A Year
in Advance
of its Field*

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That is why it is a money maker.

That is why it will make you money.

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4-Wheel Brakes
European Type Motor
Transverse Rear Spring

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25 to 30 miles per gallon
of gasoline
New Carburetor Development

Write today for full information

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Five Passenger Sedan	1295
Special Coupe	1395
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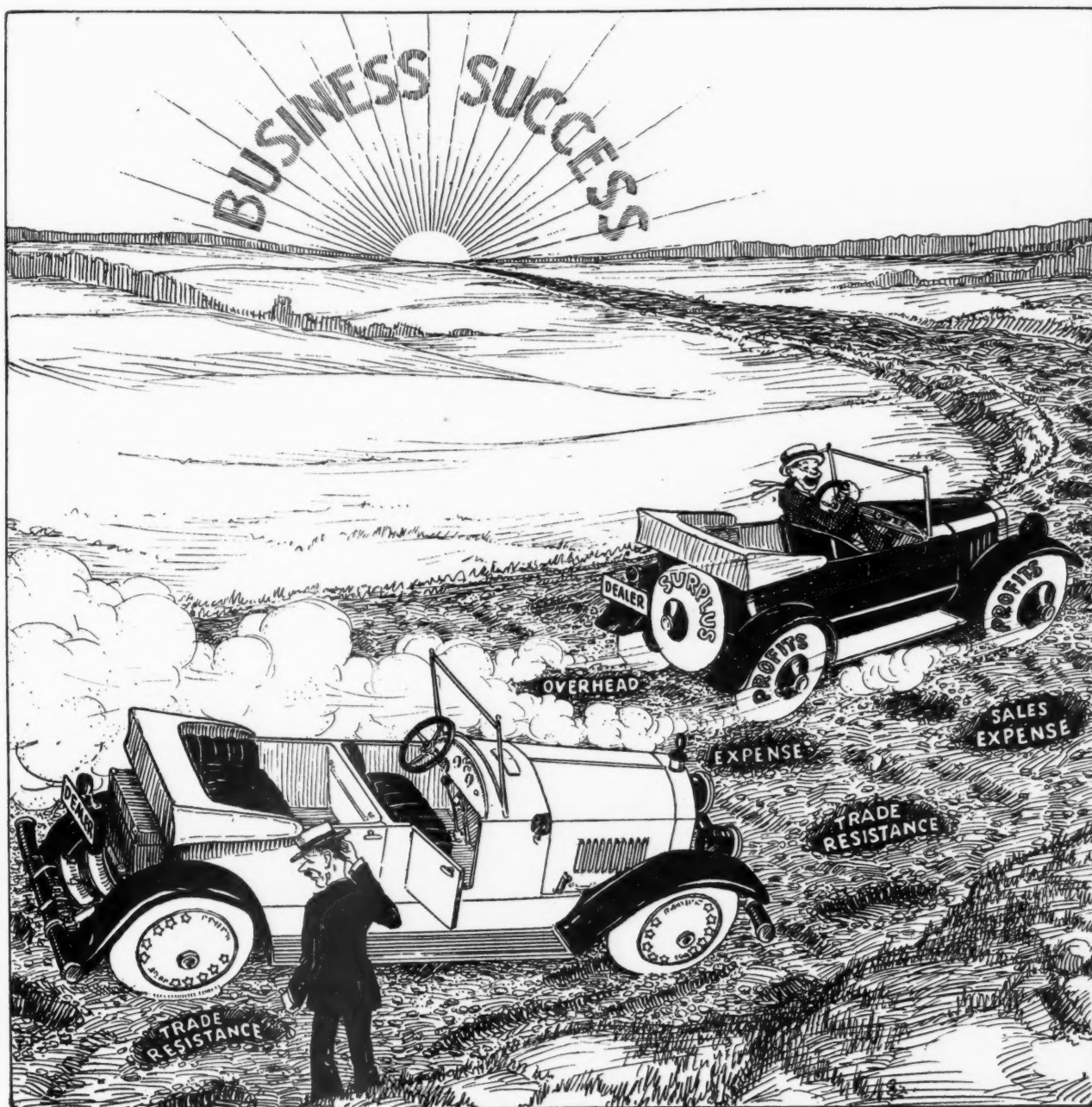
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Sedan	Taxicab	Pay Enter Bus
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MOTOR AGE

Profits Smooth the Way



THE road to business success is not always made easy by a large volume of sales. Profits are the determining factor and the dealer who does not equip himself with an adequate measure of profit on his daily sales is sure to find the way a rough one. Read the articles on Profits Versus Volume which begin in this issue of MOTOR AGE.

Profit the Motive of All Business

The Automotive Merchant Has a Common Objective With the Grocer, the Drygoodsman, the Baker, the Realtor—He Deserves More Than a Mere Living

By SAM SHELTON

PROFIT IN THE AUTOMOTIVE BUSINESS

This is the first of a series of articles dealing with the subject of profits in the automotive business. In this series it will be pointed out that the lessons which other merchants have learned may serve to guide the automotive merchant through the business shoals and upon the course that leads to success. The first point is that the automotive merchant must realize that he is in business to make a profit, that he is entitled to it, and that it is necessary for him to organize his efforts with that purpose in view. Other articles will appear from week to week in MOTOR AGE.

Profits vs. Volume—No. 1

PROFIT is the magic word in American business. The individual or institution engaged in business, whether it is selling automobiles, groceries, dry goods, shoe strings or houses and lots, is actuated by the desire to acquire profit.

The purpose is a legitimate one, for only by earning a profit is it possible for a business to continue to be operated efficiently so that it will serve the public.

The economic structure which prevails throughout the world today recognizes a distinct place of usefulness for the merchant. The whole world may be divided into three groups — producers, distributors and consumers. *The producers buy and sell with the same object in view* and the consumers buy and use for an advantage gained, which perhaps assists them in the acquiring of profits elsewhere.

Merchant Makes Products Available

The automotive merchant, then, should realize first of all that he is engaged in a useful pursuit, one that has its reason for existence in the service it performs for society.

It is the merchant or distributing agency in any business who makes the products of the producer available to the consumer when and where needed. In order to carry out his function the merchant must maintain a place of business, he must carry a stock of goods, he must provide the means for delivering the goods into the hands of the buyer, in many cases he must provide the means for servicing the goods or maintaining them in a condition of usefulness.

These elements are present in every business no matter how large or how small and they must be fully provided for before the owner or proprietor of the business can reap a profit. In the well organized business these burdens are so well distributed that every sale bears its proportionate share and in addition contributes to the profit.

The proprietor of a business such as the retailing of automotive products is interested primarily in earning a living for himself and his family. He devotes his energies and ability to the conduct of his business which as we have already noted is performing a useful service to society, if it is honestly and well conducted.

In return he expects to gain from the business a liveli-

hood. He also employs others, if the business is of any size, to assist in operating it efficiently. These in turn must be paid wages or salaries which constitute their means of livelihood.

But the business which does no more than provide its proprietor and his employees with a means of livelihood is not a successful business. Its foundation is not sound and its existence is precarious. An ill wind may easily blow it away.

The business organized as a corporation which only pays its necessary costs of operation including the salaries and wages of managers and workers would not be considered successful. It is expected in addition to provide a profit, or dividends, to the investors whose capital it uses.

Considering the retail store in its simplest form, therefore, as a business owned by one man who may or may not hire help to assist in the operation of it, we find that the owner is entitled to a livelihood which should be in the form of salary, and in addition is entitled to receive a profit on two separate accounts; first on the capital which he has invested in the enterprise and, second, on the capacity for management which is in the end the means of raising the business to the level of success.

This profit which the owner or owners of a business are able to acquire is the real incentive for the development of an enterprise. It is many times more powerful than the returns that might be earned as wages or salary. It enables the man who receives it to build up and accumulate an estate which may be his bulwark in old age or may provide the means for a still more ambitious business undertaking. It is the reward of business capacity intelligently directed toward the rendering of a public service.

Set Aside for a Rainy Day

Profit also is the means of providing a surplus which may safeguard the business against the dangers of depression and financial loss which are likely to confront it. In other words profit should not be considered as a thing entirely apart from the business to be taken and used wholly in other fields. No matter how capably a business is conducted there is the probability of conditions confronting it such that for a time its operation along such lines as are dictated by competition and reputation will not be profitable. The business which has from time

to time set aside a portion of its profits as a reserve fund will be able to withstand such conditions and in all probability come through the period of adversity in stronger position with its custom than before.

Thus it is wise for the merchant to set aside a proportion of his profits for a reserve that may be needed to tide the business over a rainy day.

There is, generally speaking, only one source of profit for the merchant. It must come bit by bit from the individual sales and transactions which he makes in carrying on his business. Profit lost on a single sale is like water that has run by the dam.

Profit in the distributing, or retailing, branch of business is made by buying at one price and selling at a higher price. Thus when a given quantity of goods is sold the amount received for them should exceed the cost. The difference should pay for the cost of maintaining a place of business, interest and capital invested, salaries and wages of employees and other costs of getting the merchandise into the hands of the buyers, and in addition provide the net profit which makes the business a worthwhile and attractive enterprise.

Not all businesses are operated on a profitable basis. Statistics of the large credit corporations reveal an astonishing proportion of failures. The exact proportion does not matter. It was reported recently that an economist of note doubting published assertions of 90 per cent of failures in a particular line of business made an investigation of his own and found the percentage was only 88.

And yet it is certain that every business is established for the purpose of yielding a profit. There is no denying that profit is the motive. The failures are not due to misdirected objective, or misconception of the purpose of engaging in business. They must be due to ignorance or lack of understanding of what constitutes profit, or to lack of capacity for the successful conduct of a business.

Lack of business capacity is an inherent weakness that cannot be overcome. Where such incapacity exists in the owner or responsible head of the business the only salvation is in frank recognition of it and the hiring of capable management.

Where the incapacity exists in the owner or manager failing to understand how to acquire and conserve profit there is hope for the business. In such case the responsible head of the business should make a thorough study of it and analyze his methods. If he discovers and recognizes his shortcomings he is in position to correct them. In this way many an enterprise heading toward failure has been turned into success.

The principles discussed here are, of course, applicable to all legitimate business. The automotive business is no exception. There was a time when wealthy youths sought automobile agencies as a "game;" a "business" in which they might stand conspicuously apart from the ordinary tradesman; something removed from and above ordinary merchandising; a congenial calling surrounded with dignity and distinction. Or perhaps the one attracted to the business was the man of sporting instincts—the man accustomed to the adulations of the crowd who expected that admiring friends would flock in to buy his wares. But even in such cases the actuating motive was profit. It was expected by the man engaging in the business that profit would come from it.

In fact, the expectations of profit were sometimes entirely too optimistic. And even in some instances there was the expectation that profit could be had without the rendering of the adequate service to society that the successful distributor of merchandise must render.

But then, as now, profit was the purpose for which men engaged in the business of selling automobiles and automotive products. Those who have held fast to their objective and studied industriously the ways to accomplish it are the ones who have been successful. Many, however, have fallen by the wayside, not because they lacked the ambition to acquire profits but because they didn't know how.

(The next article in this series, to be published next week, will be entitled "A New Business but Old Principles." It will deal with the established principles of merchandising which must be applied to the automotive business if it is to be successful.)

The Editor Wants Your Help On a Practical Business Problem

A reader of MOTOR AGE has written to the editor substantially as follows:

He is considering the purchase of a garage in a town of 500 population 12 miles from a city of 160,000 population. It is the only establishment in the town doing maintenance work on motor vehicles and selling a general line of automotive supplies. There is one other filling station. There are between 175 and 225 cars in the town and immediate vicinity.

This subscriber wants information on these points:

Would the nearness to the large city be a drawback to the business?

What would be the approximate volume of business that he might expect from the cars in the immediate community, not counting on transient cars?

What in a general way are the possibilities for the development of a profitable automotive business in such a location, servicing all makes of cars?

We want MOTOR AGE subscribers to help us analyze this problem. Probably many of you have experienced or observed the working out of an automotive maintenance business under conditions very similar to those described by this reader. Tell us about it in a personal letter to the Editor. Go into detail. Give reasons and causes for things working out as they did. Or give us your opinion of what might be expected of the garage described here. Write freely. Your name will not be published, but what you tell may be of great service to other MOTOR AGE subscribers.

Studebaker Puts Out Three Practically New Six-Cylinder Models

More Powerful Engines, Pressure Lubrication; Unit Powerplants and Balloon Tires Among Changes. Body Types Include Fifteen Models.

All Open Models Fitted With Permanent Top And Novel Side Curtains Mounted On Shade Rollers

THREE practically new six-cylinder models in 15 body types make up the Studebaker line for 1925.

All have more powerful engines than the corresponding models of last year, pressure lubrication, full automatic ignition, unit power plants, one inch longer wheelbases, and balloon tires as regular equipment. The body and hood lines of all models have also been changed and improved. The Standard Six, which replaces the former Light Six, is offered in six body styles, the Special Six in five, and the Big Six in four.

A four wheel braking system, which differs radically from anything that has been used heretofore in this country, is offered as optional equipment at additional cost. The braking forces are developed hydraulically by a gear oil pump type of servo motor driven from the transmission from which point they are transmitted mechanically to the brakes. This construction has the twofold advantage that it gives perfect right and left equalization and at the same time minimizes the pedal pressure necessary to operate the brakes.

All open models are fitted with an entirely new design of permanent top. The important feature of this top is that it

offers ready protection against inclement weather. This advantage is secured by mounting the side curtains on shade rollers which are concealed in the top. When protection is desired, it is simply necessary to pull the curtains down and secure them in that position with fasteners provided on the body. On the phaetons, the front edge of the forward curtain slides in a groove in the windshield upright and the back edge of the rear curtain in a groove in the rear quarter. The front curtain overlaps the rear curtain so that the joint is weatherproof. On the roadsters, the construction is the same except that there is only one curtain on each side. The framework of the top is a substantial structure made up of pressed steel panels with welded joints. The rear quarter and back panels have plate glass windows.

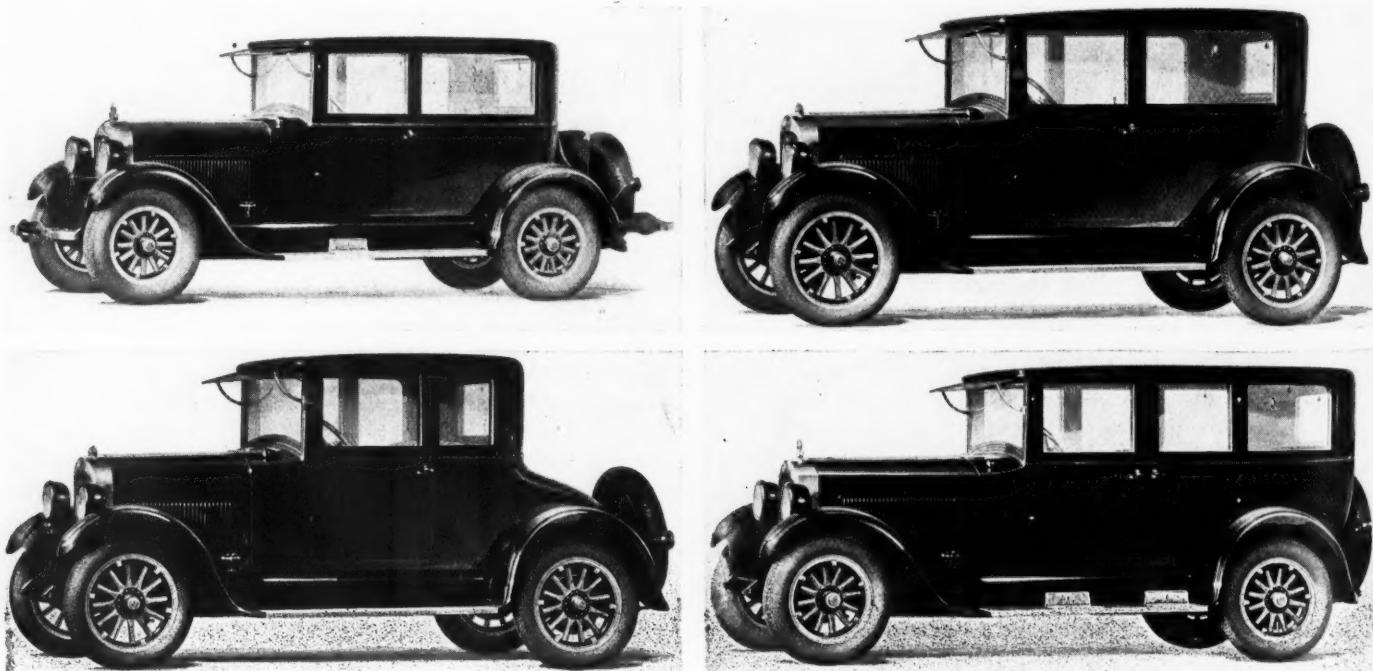
The power output of the engines has been increased with a consequent improvement in acceleration, by raising the compression and, in the case of the Standard Six, by increasing the piston displacement. The Standard Six has a $\frac{1}{4}$ in. larger bore than the Light Six and its compression ratio has been raised from 4.38 to 4.5. These changes have raised the power from 40 to 55 hp. at 2,200

r.p.m. The compression ratios in the Special and Big Six engines have been raised from 4.1 to 4.45 with the result that the former is now said to develop 65 hp. and the latter 75 hp., both at 2,200 r.p.m. No change has been made in the cylinder dimensions which are $3\frac{1}{2} \times 5$ and $3\frac{7}{8} \times 5$ in., respectively.

Both Special and Big Six engines in the past used the same crankshaft and this practice is continued in the new models, but the shaft is heavier and stiffer than formerly. Both engines are equipped with Lanchester vibration dampeners, this being a new feature on the Special Six. The crankshaft are machined all over and put in static and dynamic balance.

Except for the foregoing changes and those made necessary by the adoption of full pressure lubrication and of the unit power plant construction, the engines do not differ materially from those employed in last year's models. In the Standard Six, the oil pump is mounted and driven in the same manner as in the Light Six. It is supported by a bracket bolted to a pad cast on the right side of the crankcase. This bracket also supports the generator, water pump and distributor.

The drive for this group of accessories



Studebaker closed models. Upper left, the Big Six five-passenger coupe. Upper right, the Standard five-passenger coupe. Lower left and right show respectively the Standard two-passenger coupe roadster and the Special five-passenger sedan

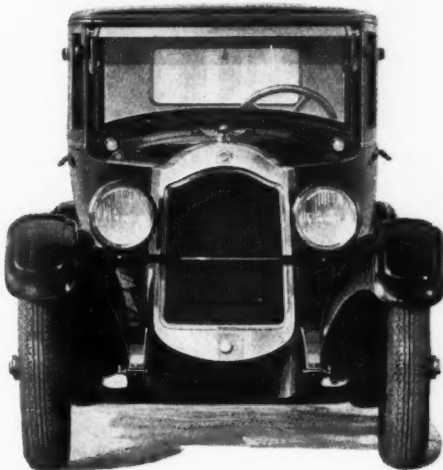
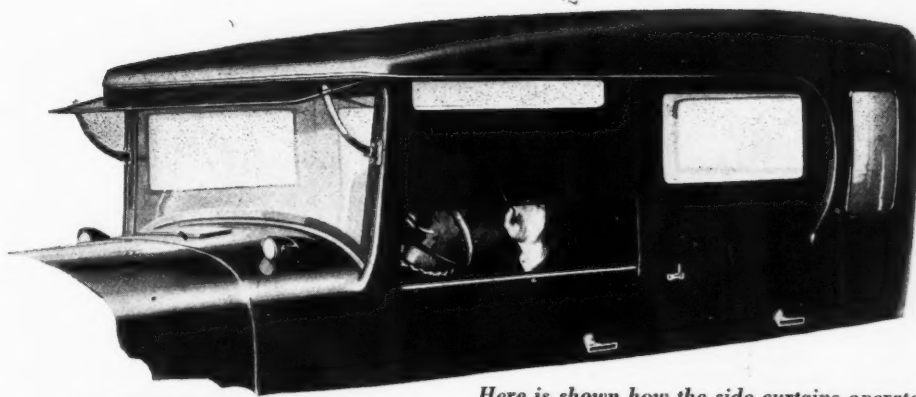
is from the timing chain through a short accessory shaft with fabric couplings at either end to the front end of the pump shaft. The generator is driven through a coupling and the oil pump and distributor through helical gears on the rear end of the pump shaft. In the Special and Big Six engines the oil pump is driven from the rear end of the camshaft in the same manner as in last year's models. The oil distribution and return system is the same in all three engines. The oil pump discharges into a header extending the entire length of the inside of the crankcase and supported by the main bearing webs. Ducts are drilled in the webs to conduct oil to the main and camshaft bearings. The crankcase also has drilled passages leading to the connecting rod bearings. Discharge from a longitudinal groove in No. 1 camshaft bearing lubricates the front end drive. Excess oil draining back from the engine is caught in a pressed steel tray which is supported by the oil pan. At its lowest point this tray has a flared opening through which the oil drains into a cylindrical wire screen supported by a circular plate bolted to the bottom of the oil pan. Before entering the reservoir formed by the base of the oil pan from which the pump draws its supply, the oil is filtered through this screen and impurities removed. In the Standard Six, the drain plug is arranged so that it may be opened from above by turning the bayonet gage provided for measuring the oil level. The two larger models have float oil gages and the drain plugs is provided with a handle so that it may be operated from above.

Fly Wheel Housing Separate Casting

Numerous changes have been made necessary by the adoption of the unit power plant construction, and formerly the transmissions were mounted amidships in all three models. In each case, the flywheel housing is a separate casting with integral supporting arms which bolt to a sub-frame. On the Standard Six, the front support is formed by an extension cast on the timing chain cover, which rests in a trunnion on a frame cross member. In the two larger engines, supporting arms are cast on each side of the front of the crankshaft and these arms bolt to the sub-frame, thus giving four points suspension.

Single plate clutches and three speed, selective sliding gear transmissions are used on all models. The friction material is riveted to the driven disk and release is effected through levers which are provided with adjusting studs to take up wear. The clutch release bearing is a ball thrust and the pilot bearing an annular ball.

The transmission gearsets are of similar design in all three models. The clutch gear bearing is an annular ball. The transmission shaft is supported at its rear end in a double row ball bearing and, at its forward end, is piloted in a bronze bushing. The four gears on the countershaft are all cut from one forging, the entire group rotating on bronze bushing mounted on the shaft which is secured in the transmission housing. This construction was used on the



Here is shown how the side curtains operate on shade rollers, a new feature of Studebaker models. A front view of the Special Six five-passenger sedan also is shown

Adjustment of both the upper and lower knuckle bearings is effected by taking up on the bushing in the lower axle eye. Lubrication is provided by two Alemite fittings. In the Standard Six axle with front wheel brakes, the axle forging is much heavier to enable it to meet the strains imposed by four wheel brakes. The knuckle is also inclined transversely. Another difference is that the stub axle is separate and is a taper fit in the knuckle, a castellated nut on its inner end locking it in place.

Taper Roller Bearings at Upper Pivots

Taper roller bearings are used at the upper pivots in the Special and Big Six front axles, as in last year's models, but the angle of the rollers is steeper. The lower pivot is formed by a steel pin pressed into the knuckle and having its bearing in a hardened steel bushing. Adjustment of both pivot bearings is secured by taking up on this bushing. The pin in the knuckle has an axial oil passage drilled in it and the end of this passage is tapped so that a puller may be used to remove the pin, should replacement be necessary. Lubrication is provided by an Alemite fitting. When front wheel brakes are furnished on these models, a special front axle is used. The construction at the upper pivot is the same but at the lower pivot the tapered end of the knuckle rests in a hardened steel thimble mounted in a bushing screwed into the lower eye of the axle. This bushing provides the adjustment on the upper and lower bearings. The axle forgings are heavier to withstand the braking strains and the knuckle is inclined transversely. As in the Standard Six axle with front wheel brakes, the stub axle is a separate part.

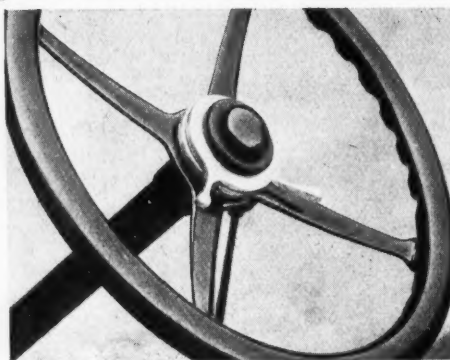
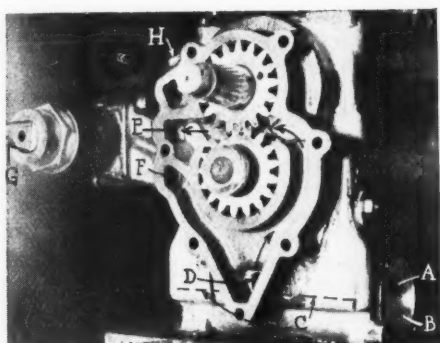
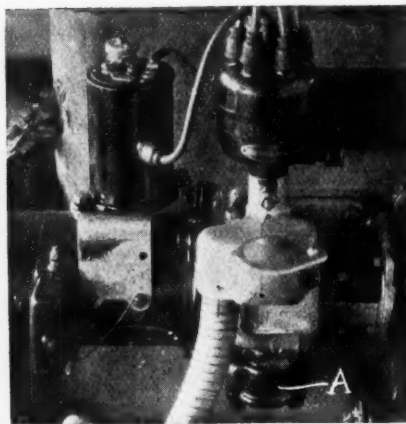
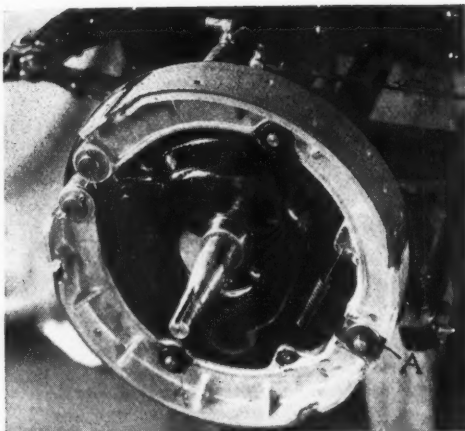
Worm and wheel steering gears with a 10 to 1 reduction are used on all models. An eccentric adjustment is now provided on the steering gear case cover so that the center distance between worm and wheel may be altered to correct for wear. An adjustment has also been provided on the ball which takes the thrust of the worm wheel. Another change which assures proper alignment of the steering tube in its bushings, is the extension of the steering tube jacket from the floor boards down to the steering gear housing at which point it clamps on a pilot on the upper end of the worm adjusting nut.

former Light Six but is new on the Special and Big Six. All models have transmission locks as regular equipment.

From the transmission, the drive is through two universals and a tubular propeller shaft to the rear axle. Fabric universals are used on the Standard Six and Spicers on the two larger models.

Rear axles are of the semi-floating type with helical bevel reduction gears, the design being much the same for all three models. The differential housing has been made stiffer and the pinion shaft mounting is more rigid. The pinion shaft is carried in two taper roller bearings which are mounted in a sleeve that screws into the differential housing and is locked by clamp and key. This construction permits adjustment of the pinion with respect to the ring gear and adjustment of the pinion shaft bearings from outside of the axle. Axle shafts may be removed without disturbing the differential by taking out the cages of the roller bearings supporting their outer ends. The rear axle reduction on the Standard Six is 4.6 to 1, except on the five passenger closed models which have a 5.1 to 1 reduction. All Special and Big Six models have a 4.36 to 1 reduction except the Big Six phaeton which has a ratio of 3.69 to 1.

Elliott type front axles are used on all models. On the two wheel brake jobs, the axes of the knuckles are vertical and the wheels are cambered. In the Standard Six front axle, the use of a thrust button to carry the load instead of the washers employed previously for this purpose, is a factor in giving easier steering with balloon tires. The steering knuckle bushings are of hardened steel.



Some mechanical close-ups of the new Studebaker cars. Here are shown the transmission oil pump with cover removed; the front wheel brakes; generator, coil, water pump, distributor and oil pump mounting on the Standard Six and the new type of steering wheel. The left-hand lever controls the lights

As all models are equipped with full ignition, no spark lever is necessary and it has been replaced by the lighting switch lever. This lever operates a tube which in turn controls the lighting switch through bevel gears. The lighting switch is mounted on the steering gear housing. In the Standard Six, the lighting circuit fuse is mounted in the switch housing, but in the Special and Big Six the circuits are brought around the back of the engine in a flexible metal conduit to a fuse box mounted on the right side of the cylinder block. In both cases, the

lighting switch and fuse are accessible for maintenance.

All frames have been strengthened against torsional strains by the addition of tubular cross members front and rear. In addition on the Special and Big Six, the flange width of the frame side rails has been increased from 1 3/4 to 2 in. The springs are unchanged but the spring bolts have been increased in size. The front rear spring bolt, which takes the driving thrust, has been increased from 3/4 to 1 in. in diameter and the other

spring bolts have been enlarged from 9/16 to 3/4 in. This applies to all models.

As in last year's models, the service brakes act externally on drums on the rear wheels, but the internal emergency brakes have been replaced with a contracting brake on the transmission. This brake is operated through a steel cable from a handle on the dash so that the only lever in the driving compartment is the gear shifter. Wood wheels with demountable rims are regular equipment on all models except when front wheel brakes are furnished in which case disk wheels are standard. The tire sizes are 31x5.25, 32x6.20 and 34x7.30 on Standard, Special and Big Six models, respectively.

When front wheel brakes are furnished, a special transmission is used and, as has been pointed out previously, a special front axle. The former unit does not differ from the standard transmission as far as the gear changing portion is concerned, but it has the gear oil pump type of servo motor mounted on its rear end. The pump consists of two gears one of which is keyed to the transmission shaft and the other is mounted on a stud. It is enclosed by a cast housing and cover-plate which bolt to the transmission case.

When the brake pedal is depressed, the pressure developed by the oil pump acts against two opposed pistons located in a cylinder cast integral with the bottom of the transmission case. The pressure causes the pistons to move outward and, as they have the same diameters, the forces they transmit to the brake linkage are equal. This construction consequently gives perfect right and left equalization. In addition, all the work is done by the pump so that a light pressure on the pedal applies the brakes.

Pump Draws Oil Supply From Transmission

Herewith the rear end of the Special Six transmission is shown with the oil pump cover plate removed. The cylinder in which the pistons operate is at B. The pump draws its supply of oil from the transmission through the opening A. Opposite A there is another opening in the cylinder wall which is the entrance to the cored passage shown by the dotted line C. This passage has its outlet at D from which point the oil moves as indicated by the arrows through the pump and into the passage E. This passage connects with a parallel passage discharging at F. It is obvious that ordinarily the pump is short-circuited and develops only the pressure necessary to circulate the oil when the brake pedal is depressed, the plunger G is pushed in, closing the connection between passages E and F. Under this condition, the oil pump builds up pressure instantaneously and transmits it through the opening J from which point a passage leads to a part in the cylinder wall between the two pistons. A pressure relief valve located at H, is provided and is set at the factory at about 60 lbs. pressure, the figure varying on the different models. The oil pressure is shown by a gage which is included in the instrument panel on cars equipped with four wheel brakes. This gage has a red hand which

The New Studebaker Models

STANDARD SIX MODELS

Duplex-Roadster—Three Passenger	\$1125
Duplex-Phaeton—Five Passenger	1145
Coupe-Roadster—Three Passenger	1395
Coupe—Five Passenger	1495
Sedan—Five Passenger	1595
Berline—Five Passenger	1650

SPECIAL SIX MODELS

Duplex-Roadster—Three Passenger	\$1450
Duplex-Phaeton—Five Passenger	1495
Victoria—Four Passenger	2050
Sedan—Five Passenger	2150
Berline—Five Passenger	2225

BIG SIX MODELS

Duplex-Phaeton—Seven Passenger	\$1875
Coupe—Five Passenger	2650
Sedan—Seven Passenger	2785
Berline—Seven Passenger	2860

Studebaker Hydraulic 4-Wheel Brakes, Optional Equipment.

On all Standard Six Models with 4 disc wheels and spare rim, \$60.

On all Special Six and Big Six Models, with 5 disc wheels, \$75.

is set at the factory to indicate the proper pressure. When the brakes are applied, the indicator on the gage swings over to the red hand thus giving an indication that everything is in working order.

The foregoing description also applies in principle to the Standard Six, the difference being only in the manner in which the oil passages are worked out. In the Special and Big Six the operating plunger G moves longitudinally and is connected to the brake pedal by a link. In the Standard Six, this plunger moves transversely and is operated by the pedal through a link and bell crank.

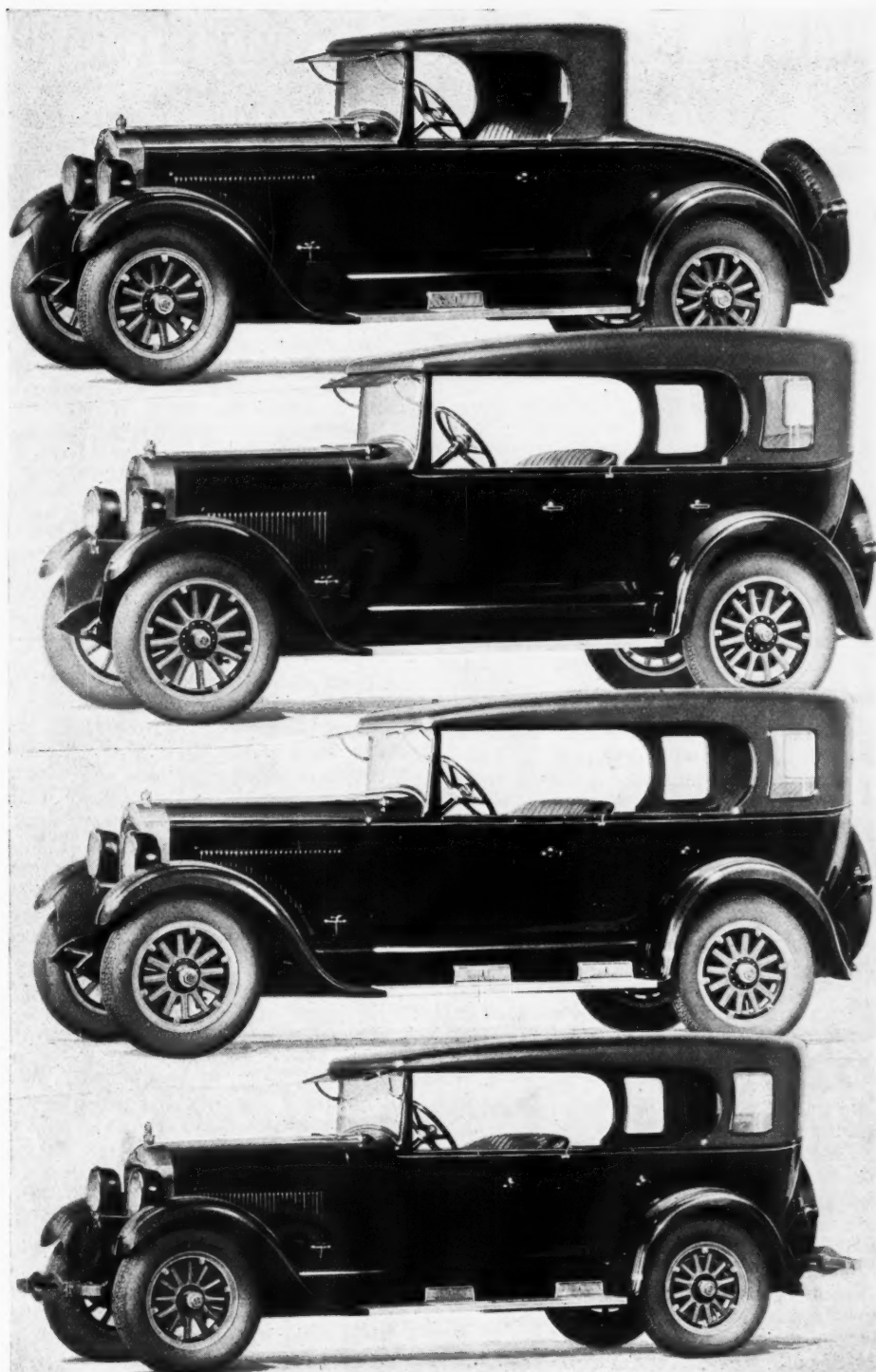
The pistons actuate levers supported by brackets cast on the oil pump cover plate. From the rear ends of these levers helical springs extend to the frame side rails. These springs return the pistons to their central position when the brake pedal is released. The rear ends of these levers are also linked to the crank arms of equalizer bars which are supported centrally by hangers pivoted on brackets on the frame side rails. This construction permits fore and aft motion of the equalizer bars. The inner end of each equalizer bar is connected by a rod to a crank arm on the inner end of the cross shaft which passes through the frame channel at a point just above the front rear spring support. On the outer end of this shaft there is another crank arm which is linked to the lever on the rear brake.

From the outer ends of the equalizer bars rods lead forward to short levers hung from the frame side rails. These levers are linked to crank arms on the front wheel brake operating shafts which are supported by brackets bolted to the axle forging.

Front Wheel Brakes Supported by Brackets Forged Integral With Knuckle

The front wheel brakes are supported by brackets forged integral with the knuckles. There are two cast aluminum shoes to which the brake lining is riveted. These shoes act internally on the brake drums. Both shoes are pivoted on studs mounted near the forward end of the brake supporting bracket. Into the other ends of the shoes are set steel blocks against which the expander cam sets. This cam is located on the outer end of a shaft which passes through the rear end of the brake supporting bracket. On its inner end, the shaft has a crank arm which has a ball joint connection with a link that extends forward and upward at an angle of about 45 deg. At the upper end of this link, there is a second ball joint which connects it to the crank arm on the outer end of the brake operating shaft.

The only adjustment on the brakes is at the rear wheels. Liberal clearances are allowed at the front wheel brakes, as close adjustment is not necessary. Although the brake operating pistons have a possible travel of $2\frac{1}{4}$ in., the maximum used under any condition is $1\frac{3}{4}$ in. and when the linings at the front wheels are new, a travel of less than an inch applies the brakes. Of course, as the linings wear, the piston travel increases. This is not an objection, however, as it does not increase pedal travel



Open models of the new Studebaker cars, showing, top to bottom, the new Special Six three-passenger Duplex-Roadster, the new Standard Six five-passenger Duplex-Phaeton, the new Special Six five-passenger Duplex-Phaeton, and the new Big Six seven-passenger Duplex-Phaeton

nor does it result in any perceptible lag in the operation of the brakes.

Should the hydraulic method of operating the brakes fail, the rear wheel brakes can be applied mechanically by depressing the brake pedal past the hydraulic range. This emergency feature is provided by connecting the brake pedal to an equalizer bar at the rear by an auxiliary rod. This equalizer bar is connected to the brake cross shafts mentioned previously. The rod has a slotted yoke connection with the equalizer bar and the length of this slot is such that

no force is transmitted to the equalizer bar until the pedal has passed through the hydraulic range.

The brake leverages are laid out so that the braking forces exerted by the pistons are divided between the front and rear wheels on a 40-60 basis. The wheels cannot be locked hydraulically because, as the rear wheels slow down, the oil pump has its speed reduced in proportion and, if the rear wheels should lock instantaneously, the pump would also would stop. In that event the pressure

(Continued on page 21)

Flat Rates for Starting Motor Repairs

Total Time Is Always Longer Than It Takes For Actual Operation With Screwdriver and Wrench

By A. H. PACKER

"JUST the man I wanted to see," said the electrical repair man. "Those flat rates are what we need, but how do you ever get two hours for taking off a generator on a Willys Knight, I can do it in 10 minutes."

"Don't doubt it a bit," was the answer, "That time is a little too long, in fact a slip of the tongue you might say, and if you will check with the prices you will see that .83 hour was the time that should have been shown. But don't ever figure on charging the customer on the actual time it takes you with wrench and screw driver. You spend five minutes helping the driver of the car jockey into a stall in your shop, then perhaps 15 minutes listening to his recital of how he got stuck in a mud hole yesterday and then had his starter go bad, then perhaps 10 minutes or more testing to see what the trouble really is and another 5 minutes making out a card or repair order."

In many cases you may get the man out of the shop in less time than that, but some allowance must be made for the time consumed in this way and the right place to put it is on the charge for taking off and replacing. No flat rate system will be found to be perfect, but it should be near enough to serve the shop at the start, and can be modified as experience justifies changes. No less than a quarter hour should be considered as the actual time for any single work item and at least a half hour should be added to cover the lost time above illustrated.

Flat rate for starter repairs assumes, of course, that the shop electrician is capable of quickly analyzing trouble so that he is sure of his diagnosis and does not recommend a starter overhaul when battery terminals need cleaning. This means that he must be familiar with the simple tests and if in doubt check up with voltmeter or ammeter, or both.

Reviewing the starter trouble tests given from time to time in MOTOR AGE we have the three conditions where the lamps are observed while the starter switch is operated. The action of the lights in going out is nearly always indicative of corroded battery terminals or poor battery ground connection, and if in doubt as to the location of the trouble it can be usually determined by the wire test or by using a voltmeter. When some current flows, but the resistance is high, it produces heat which makes it easy to find the bad spot in the circuit.

Where the lights get dim, it usually shows a weak battery, although a starter which is defective mechanically or electrically will cause the same action of the lights. In such a case there is a chance to make a mistake in analyzing

Electrical Flat Rates

THIS is the third of a series of articles on the application of the flat rate, or predetermined charge, to maintenance operations, performed on the electrical equipment of automotive vehicles. In the first article published in MOTOR AGE, June 12, the general principles of flat rate charging were discussed. The second article was published in MOTOR AGE of July 24 and in this suggested schedules were given for generator repairs. One more article in this series will appear in an early issue of MOTOR AGE.

the trouble and the wise electrical man will insert a high reading ammeter in the circuit before committing himself as to what is wrong. When the lights stay bright the matter is simple and a piece of wire is quickly used to find the place where the circuit is open. As this open place is often in the starter itself, it means in most cases a starter overhaul job. On the other hand it may be found in hunting for starter trouble that the starter is O. K. but that the battery needs repairs or replacement, which means repair work or a sale for the battery department.

In removing a starter attention should be given to the condition of the teeth on the flywheel. In many cases these are cut directly in the cast iron flywheel and due to jamming of the pinion or carelessness in operating the starter switch, may be so damaged that there will be occasion for selling a flywheel, ring gear. This will mean a job for the mechanical department of the shop, and with flywheel teeth in bad shape should be recommended, for the starter will not give good service if its pinion is continually sticking.

So we find that flat rate starter repairs, in addition to being more satisfactory from the point of view of both customer and shop, will bring in work which may lead to more business in other departments of the automotive maintenance station.

In July 24, 1924, issue of MOTOR AGE we had flat rates on generators, there being three charts, and in working out starter repair prices the same plan has been followed. Here chart "A" gives the price recommended and used by one of the large electrical concerns in Chicago, no variations being made on account of difference in the time required to take the starter off or take it apart. While one job may take a little more time and another a little less, they figure that in the long run it is simpler to have a standard charge.

Where a smaller number of jobs per day are handled chart "B" might be preferred where individual prices are indicated, these being proportioned according to the difficulty of removing or disassembling. In this chart the total work on each car is lumped without regard to whether the repair job is simple or complicated. This means that on some starters it might be necessary to merely install new brushes, while on others the rocker ring might need insulating, the armature leads might need to be soldered and the commutator turned, and yet the same price would be charged in each case. Of course the average job will be a simple one and only occasionally will much work need to be done on the armature. The shop specializing in thorough work, however, will usually take a light cut from the commutator, for the reason that it makes the job look like new as well as making it possible for the brushes to make good contact.

For those who wish to proportion the charge still more in accordance with the actual work done, chart "C" is provided. Here the repair does not include turning the commutator or replacing field coils. In the case of Chalmers, for example, repairing is \$3.25, which would mount up to \$4.25 in most cases where the owner of the car drives in and the starter must be both removed and replaced. Then if the commutator needs turning or fields need replacing a dollar extra is added for each operation.

Truck Carries Health School

Libraries on wheels have become quite common in the rural sections of many states. But the hospital on wheels is something new.

The state of Arkansas recently placed in operation a Graham Brothers truck completely equipped for maternity and child hygiene work. With the high ambition of raising the physical condition of the people and elevating every child of school age to a higher state of mind and body, the state health officer is sending this truck and a staff of doctors and nurses on a tour of every county. The "Health Caravan" remains three or four weeks in each county seat.

The truck is equipped with a special motor, by means of which a motion-picture machine is operated. Interesting health pictures are displayed from day to day in every town visited. Thus the citizens are learning how to defeat the musical mosquito, how rapidly the fly breeds and how it contaminates food and drinks. The necessity of birth registration forms the thread of the story in one picture.

Suggested Schedules of Flat Rates for Starting Motor Repairs

NOTE—These charts should not be applied to obsolete types or to cars over three years old.

CHART "A"

Starter repair	\$5.50
Extra for removing and replacing on car...	1.00

CHART "B"

Car Make	Hours Needed to Repair Only	Charge at \$1.50 Per Hr.	Hours to Remove, Repair and Replace	Charge at \$1.50 Per Hr.
Auburn	3.16	\$4.75	3.66	\$5.50
Apperson	3.16	4.75	3.66	5.50
Chalmers	3.00	4.50	4.00	6.00
Chandler	3.16	4.75	4.17	6.25
Chevrolet	2.66	4.00	3.50	5.25
Cleveland	2.66	4.00	3.50	5.25
Davis	3.33	5.00	4.17	6.25
Dort	2.83	4.25	4.00	6.00
Essex	3.33	5.00	4.00	6.00
Ford	2.00	3.00	3.50	5.25
Franklin	2.83	4.25	4.00	6.00
Gardner	2.83	4.25	4.00	6.00
Gray	2.83	4.25	4.00	6.00
Grant	2.83	4.25	4.00	6.00
Haynes	3.00	4.50	4.33	6.50
Hupmobile	3.00	4.50	3.83	5.75
Jewett	3.16	4.75	3.66	5.50
Jordan	3.23	5.00	3.83	5.75
Lexington	3.00	4.50	4.00	6.00
Liberty	2.83	4.25	4.00	6.00
Marmon	4.66	7.00	5.33	8.00
Maxwell	2.66	4.00	3.33	5.00
Mitchell	3.00	4.50	3.83	5.75
Nash	2.83	4.25	3.50	5.25
National	3.16	4.75	4.17	6.25
Oakland	3.00	4.50	3.83	5.75
Oldsmobile	3.00	4.50	3.83	5.75
Overland	2.50	3.75	3.16	4.75
Packard 6 and 8	3.66	5.50	4.66	7.00
Paige	3.16	4.75	4.00	6.00
Peerless	3.16	4.75	5.33	8.00

Car Make	Hours Needed to Repair Only	Charge at \$1.50 Per Hr.	Hours to Remove, Repair and Replace	Charge at \$1.50 Per Hr.
Reo	2.83	4.25	3.66	5.50
Rickenbacker	2.66	4.00	3.50	5.25
Star	2.66	4.00	3.33	5.00
Stearns Knight	3.00	4.50	4.00	6.00
Stevens	2.66	4.00	3.50	5.25
Studebaker	2.83	4.25	3.66	5.25
Velie	3.16	4.75	3.83	5.75
White	3.33	5.00	5.17	7.75
Willys Knight	2.83	4.25	3.83	5.75

NOTE—Prices on this chart are intended to include turning commutator and replacing field coils when necessary.

CHART "C"

Car Make	On and Off Hours	On and Off Amt. at \$1.50 Per Hr.	Repair Hours	Repair Amt. at \$1.50 Per Hr.
Chalmers	1.00	\$1.50	2.16	\$3.25
Chandler	1.00	1.50	2.33	3.50
Chevrolet .....	.83	1.25	1.83	2.75
Ford	1.50	2.25	1.16	1.75
Hupmobile .....	.83	1.25	2.16	3.25
Maxwell .....	.67	1.00	1.83	2.75
Nash .....	.67	1.00	2.00	3.00
Oakland .....	.83	1.25	2.16	3.25
Oldsmobile .....	.83	1.25	2.16	3.25
Overland .....	.67	1.00	1.66	2.50
Paige .....	.83	1.25	2.33	3.50
Reo .....	.83	1.25	2.00	3.00
Studebaker .....	.67	1.00	2.00	3.00

NOTE—With this chart it is the intention to charge \$1.00 extra (.83 hr.) for either turning commutator or for the installation of field coils.

Charge for replacement of Bendix spring, bolts or complete Bendix should be 50 cents plus charge for removing starter. In the case of Ford starter the removal charge of \$2.25 should not be increased to cover replacement of Bendix parts, for the Bendix drive must be disassembled in the process of getting starter off.

New Garage Accounting System

THE Motor World Improved Garage Accounting System has been published by the U. P. C. Book Co., 239 West 39th St., New York City. This is a loose leaf system that may readily be expanded to meet the needs of almost any automotive store or shop. Sectional binding posts furnished with the book permit the binder to be expanded to accommodate more than twice the number of leaves that are furnished with the original system.

The first section of the book is for cash received and sales record. One column shows from whom cash was received and

others show for what it was received. There are other columns for daily bank deposits, withdrawals and balance. On the opposite page of this leaf is a record of sales distribution. Various columns show the name of the customer, job or sales ticket number and whether it was a cash or credit sale. Other columns show the department to be credited for the sale. The departments listed are gas, oil, storage, repairs, tires, accessories, used cars and new cars.

The second section of the book is devoted to cash paid, expenses and stock record. This shows to whom paid, check

number, amount of bill, discount deducted, amount of check, and in another division expenditures for wages, rent, freight and express, light, heat and power, advertising, taxes and insurance. The stock and invoice record shows from whom purchased, amount of bill, when paid, and the department charged with the purchase.

The third section is devoted to monthly reports. This contains forms for profit and loss statement and monthly balance sheet. It also has forms for the profit record of each department and for the distribution of overhead expense and labor.

Your Farmer Customers

What an Agricultural and Financial Authority Says About the Solution of Their Economic Problems

By EDWARD F. ROBERTS

EVERY American business man who is engaged in the buying or selling of goods has a very direct, personal interest in the so-called farm problem even if, as it no doubt true, he often wonders to himself what it is all about. He knows enough about it, however, to realize that dull times on the farm mean dull times in the store or factory and he knows also, to his cost, that for a long time now dull times on the farm have been the rule.

Ever since the bursting of the post-war business boom in 1920 the farmer has held the center of the national political stage. The fact that tens of thousands of merchants and manufacturers went to the wall in that disastrous year, went almost unnoticed compared with the tremendous pother that was stirred up over the plight of the farmer, a pother which has continued almost unabated to the present day and which will certainly not abate until after the November election, anyway.

Seeks Solution

What is the farm and what is its solution?

Because the answer to the question and the solution of the problem are of genuine concern to American business men I went out to seek them from some man who was not a politician or a professional farmer's advocate and who could justly claim to know what he was talking about. The man who seemed to fill those requirements was Guy Huston, a successful farmer and a more successful banker who has organized and directs half a dozen stock land banks in the great agricultural states of the middlewest.

Mr. Huston's father and grandfather before him were prosperous farmers and bankers in Illinois and in addition to his banking interests which involve \$160,000,000 in farm mortgages, he personally farms 3000 acres of land near the little town of Blandinsville, Ill. Not being a politician Mr. Huston has no panacea for the farm problem, but he has a very clear idea of what it is and of one drastic remedy.

"Misdirected energy" might paraphrase Mr. Huston's explanation of the problem and his remedy can be expressed almost as briefly:

"Abandon at Least a Million Farms"

That is rather a stiff facer for the people who are always talking about the necessity of a "back-to-the-farm movement, but, as has been remarked before, these same people never show much eagerness to go back themselves.

"There are 6,500,000 farms in the United States," he says, "and there are at least a million of these that should be

Abandon 1,000,000 Farms, Says Expert

THE automotive merchants located in small towns and cities, as a very large proportion of them are, know what an important influence the farmers have on their business. Without the buying that the farmer does many of them know that their volume would shrink into insignificance and others have calculated the handsome profits that would be theirs if the families on the farms were able to buy automotive products as they would like to.

In the accompanying article the writer quotes Guy Huston, farmer and banker, as favoring the abandonment of approximately 1,000,000 unprofitable farms as a step toward more general prosperity for all tillers of the soil.

abandoned, for they represent land that God never intended a plow to be put into. That is a conservative estimate, too, for if all the facts were available I believe you would find that at least one farm in four is unfit for cultivation."

"What would be the effect on the country's food supply if these million or more farmers should be withdrawn from production?" I asked.

"Very little. The land I am talking about contributes practically nothing but a living to the men who cultivate it and their families and leaves them discontented and discouraged in the bargain. They would be far happier and the country would be better off if they would abandon their hopeless task and move into town to work in the factory or shop."

"Where are these million or so hopeless farms located?" I asked.

"There are poor farms and poor lands in almost every section of the country," replied Mr. Huston, "but perhaps the worst example of what I mean are to be found in the semi-arid districts of the west and the hilly stony lands of the old south and east.

"I mean the one man and one mule southern farm that raises only cotton. The farmer of the old south is engaged against desperate odds in trying to raise cotton with the terrible three-fold handicap of a thin and sandy soil, severe rainfall and the boll weevil.

"Where then is our cotton going to come from?"

"Mainly from Texas. In the cotton growing section of Texas, the rainfall only average about 25 inches against 50 inches in most parts of the old south. Last year almost half of the entire Amer-

ican crop of cotton was produced in Texas and western Oklahoma and that proportion is bound to steadily increase. As far as my judgement goes, at least, the old south is through as an agricultural section. There are many spots of course which will remain good, such as in the Piedmont district of the Carolinas, but they are not big enough to materially effect the general situation."

"What about the innumerable remedies by law which are proposed for the relief of the farmer?"

"I have little faith in any of them. If I was personally asked to suggest some legislation to aid the farmer I could not do so. Certainly no laws fixing prices will ever benefit him. You cannot change economic facts by law. It is true that the farmer has repeatedly voted for high tariff, especially in the west. But he did so because he was convinced it would help to build up the cities and industries in his state. He was quite right in that, but it was against his own immediate personal interest."

"What could the farmer do to help himself?"

Should Invest in Outside Securities

"One very important thing he could do is to invest his savings in outside securities and give up his favorite habit of putting all his spare cash in land and more land. As soon as the average farmer accumulates a few thousand dollars his first impulse is to add to his land holdings. He does not realize that this practice simply means running up the price of land on himself. I am also a strong believer in the value of co-operative enterprises when they are on a sound basis. Many of these have failed because they were not properly organized and administered. But the idea is a good one and farmers are gradually learning how to turn it to the best advantage. Farmers are pretty much like everybody else after all. There are good ones, bad ones, and indifferent ones. The ones who are farming the rich black land of the middlewest and making money as a rule and have not got any serious complaint. The success of farming depends after all very largely on the soil. In Illinois and Iowa we have millions of acres which are so rich in potash that they will grow crops for the next 5,000 years without needing any fertilizer. About twenty-two per cent of the farm wealth of the country is produced in this favored belt, and there is enough land of this character in the United States to raise all the food we need and then some if all the poor farm land was abandoned.

"That would be one very effective solution of the farm problem."

Guaranteed Used Car Policy Adopted by Canadian Ford Dealers

Plan Approved by Manufacturer Probably Will Be Used Also in the United States

By D. M. McDONALD

FORD Motor Co. of Canada, Ltd., has initiated a used car policy the main purpose of which is to bring used Ford buyers to regular Ford dealer establishments, and by this means to curb to a large extent the used Ford business which is going to the corner lot operator and to the dealer in other lines of cars.

It is considered possible that a similar policy and plan will soon be adopted by the Ford Motor Co. for application throughout the United States. It has already been stated that the American company will assist in bringing used Ford buyers to their regular dealers, and as the Canadian plan is designed specifically to do this, the American plan when announced will probably be greatly similar.

A base list on used car values has been prepared by the factory which is in the possession of every dealer and which any prospective used car purchaser is privileged to see. This list sets forth the price in good condition of all Ford cars at all ages. This is the price which the dealer is expected to charge for the car at resale, and represents the allowance price on the car, less \$20 brokerage fee which is allowed the dealer, and also, less the cost of any repairs which may be necessary to place the car in normal condition for a car of its age.

The base list of prices has been arrived at through compilation of all used car sale prices on all models. All Ford dealers in Canada submitted lists of used car prices from which average prices were compiled. By making it possible for the prospective buyer to check up from this list, he is protected against high prices, and inversely, the dealer must base his trade-in allowance on this list to guard against losses when reselling.

Through making it possible to buy cars that are guaranteed to possess certain degrees of useful and economic life, at a price based entirely upon the usefulness still left in the car, the Ford company hopes to bring all used Ford buyers to its own dealers. Each car has a guarantee seal affixed to it, bearing the price allowed on the car, the cost of repairs that have been necessary to place it in required condition, and the sale price.

The face of the guarantee seal or tag, which is placed on the windshield, reads: "This is a Guaranteed Ford Used Car." To read the terms of the guarantee, the prospect must climb into the car as the back can only be read through the windshield. The terms are outlined as follows:

"This is a Guaranteed Ford Used Car which, means that:

"It has been bought by a Ford dealer on a price basis which has received the approval of the Ford Motor Co. of Canada, Limited, for the protection of purchasers of used cars.

"The price of this car appears underneath. The purchaser of this car may check to see what this price is as follows:

"Ask to be shown the base price approved by the Ford Motor Co. of Canada, Limited, which is the price the car should be worth if it was in normal when it was turned in.

"See that an appraisal sheet is attached to the car showing what deduction, if any, was made from this price to put the car in normal condition.

"The appraisal price which is on the appraisal sheet, plus the actual cost of repairs, is the price you pay. The repair order will be attached to this car so that you may check the cost of these repairs. In this way you pay only for the unused mileage in the car. This is the Ford method of protecting the purchasers of used cars.



"In addition:

"Genuine Ford parts only have been used.

"You are protected against liens and stolen cars.

"If this car is not satisfactory and it is in the same condition as when purchased by you, it may be returned by you within 10 days, and the full price you paid for it credited on the purchase of any model new and unused Ford car or truck.

"Do not buy a Ford Used Car unless it contains the Winged Pyramid Guarantee. This guarantee can be obtained only from a Ford dealer."

Then follows the date and signature of the Ford dealer, with the prices as outlined.

Guarantee seals are forwarded to all dealers in any quantity they require. The dealers are also supplied with a booklet entitled: "The Truth about Used Ford Cars." The booklets are intended for distribution through the dealer and salesmen, not general distribution, but only to persons assumed to be interested in buying a used Ford. No general advertising campaign announcing the policy is planned at this time, knowledge of it being spread through circulation of the booklet and sales solicitation. Dealers salesrooms, however, will carry posters and signs announcing the plan to passers by.

Why other dealers may allow more on a used Ford than the authorized dealer is declared in the booklet—"It is that he expects to find some unwary buyer and sell him the used Ford at the same price that he allowed on it—instead of at

(Continued on page 34)

Before You Buy a Used Ford Car

Do These Things

and

Obtain These Results

1 Buy Used Ford Car only from Ford Dealer.

2 Buy only Used Ford Car bearing Gold Winged Pyramid Guarantee.



3 Check the price you pay for the car by means of the following:

(a) Ask to be shown the base price approved by the Ford Motor Company of Canada, Limited, which is the price the former owner of the used car would have been allowed if it had been in normal running condition.

(b) Appraisal Sheet will be attached to such car showing the amount deducted for the cost of repairing car (if necessary).

(c) Repair Order will be attached to car showing actual cost of repairs. Parts used in repairing car are charged at a discount of 25%.

4 The Appraisal Allowance plus the repair order is the amount you should pay for the Used Ford you buy.

1 You buy a Used Ford Car at a stabilized price. This is the value of the unused mileage in the Used Ford Car.

2 It was not what the dealer was forced to allow former owner in order to sell a new car to former owner.

3 The dealer from whom you buy holds an interest in your Used Ford Car after the sale is made—so that you may remain a Ford owner and eventually buy a new Ford Car.

4 He is enabled to give you Ford service at Ford standardized service rates.

5 If you in turn wish to turn in the used Ford you thus buy, the same definite and clean cut machinery as was available to the former owner of the used car that you bought is available to you.

For the Protection of the Seller and the Purchaser of Used Ford Cars

Novel Features Found in Chevrolet's Purchase Certificate Plan

Dealers to Allow 6 Per Cent Interest on Prospect's Deposits and 6 Per Cent Credit Toward New Car On Payments For Service and Accessories

By D. M. McDONALD

INTERESTING details have been given out in connection with the Chevrolet Motor Company's "Six Per Cent Purchase Certificate Plan" which was briefly treated in a news article in MOTOR AGE on Sept. 11.

The two outstanding features of the plan are that it offers the person not already possessing a car 6 per cent interest on money deposited toward a purchase, and also, credits present car owners, who hold certificates, with 6 per cent on all service work and accessory purchases toward the purchase of new models.

In this way the sale of the certificates is opened up so that not only the non-car owner is a prospect, but also the present Chevrolet owner, as well as the present owner of any car whatsoever. The non-car owner is attracted by the 6 per cent interest feature. The Chevrolet owner by the credits of 6 per cent allowed on all service and repair work, and on any accessories he may purchase. The non-Chevrolet owner also is attracted by the credits on accessory purchases, and such repair work as can be done on his make of car in Chevrolet shops.

The plan is copyrighted by the Chevrolet company.

Keeps Buyers in Line

By reason of the fact that the 6 per cent interest accumulation is lost if the

certificate owner does not proceed with the car purchase, it is expected that the plan will be more successful than the usual one in keeping the buyers in line. Similarly, by keeping salesmen and dealers working on future profits and commissions, rather than immediate ones, it is expected to aid in holding withdrawals in these ranks to low figures.

The credit feature on service work and accessory sales has a two-fold aim. First to make repeat buyers of all present Chevrolet owners and, second, to bring all Chevrolets to authorized dealers and service stations for service work, thereby increasing the volume of parts business and service profits, and also increasing the volume of accessory sales.

As outlined by the company, the plan presents a means of offsetting depreciation on present cars, in that it sets up credits from maintenance charges on the payment of a new car when the owner is ready to change over. By servicing the old car the dealer is in position to appraise it fairly and accurately when offered in trade on a new one. Furthermore, it reduces the possibility of dealer losses through competitive bargaining on trades in that the buyer and dealer are estab-

lished on friendly terms previous to the deal.

Aids Dealer Contact

The plan differs, too, from the usual easy payment plans in that the dealer does the collecting and the keeping of accounts. He is, therefore, in touch with the buyer at all times and is in position to keep up payments to date. Money received on time payments is deposited in a separate trustee account by the dealer, so that no loss can visit the certificate holder through the administration of the general dealer business.

Purchasers under the time payment are further guaranteed against loss in any form in that the dealer and the bank in which the trustee account is to be kept are insured. Before being permitted to operate under the plan the dealer must be passed upon by the insurance company designated by Chevrolet Motor Co. Following this he receives certificates and other office equipment incidental to applying the plan and nothing remains but to go out and sell it. The certificates cost the dealer \$1 each, this meeting the cost of insurance premium which is paid by the Chevrolet company and cost of printing. The other supplies including bookkeeping equipment, seal, and stamp cost \$10.

In selling the plan, the dealer receives an actual order for a particular type of car. Copies of the order are kept by the purchaser and dealer and another copy goes to the Chevrolet zone office. Payments are credited on the certificate which the buyer retains and delivery of the car is made when a one-third payment has been accumulated or such other time thereafter as the buyer desires.

Payments under the plan may range from \$5 a month up. Dealers will insist upon regularity of payments rather than high rates, and car owners lapsing in payments, will not be entitled to the service and accessory credits while in arrears. The interest and credits will be applied to the total payment when the buyer is ready to take delivery. Usual time payments apply after delivery of the car.

The purchase certificate as prepared by the factory bears the name of the dealer and the city in which he is located.

Company Reserves Right

Provision is made in the certificate that in the event of a change in dealer, the certificates will be taken over by the Chevrolet Motor Co. and may be assigned by them on satisfactory terms to a suc-

(Continued on page 38.)

Outstanding advantages of the "Chevrolet Six Per Cent Purchase Certificate Plan" are outlined by the company as follows:

It opens up a new market.

It covers the present market more effectively by making repeating buyers of Chevrolet owners.

It makes an immediate prospect of everyone who now owns a car.

It strengthens the dealers' credit with the banks.

It reduces turnover in salesmen, and give them a chance to build a business for themselves.

Intensive canvassing by salesmen becomes easy with the Certificate as everyone is a prospect.

It increases the business in the service department.

It increases the sale of genuine parts insuring better service from Chevrolet cars.

It reduces selling costs

It is profitable to the purchaser as well as to the dealer and salesman.

It provides a closer and better contact with present owners.

It provides a close contact with future owners, closing the order before competitors know the purchaser is a prospect for a car.

The dealer can enter into contracts with a better knowledge of future business.

It has much advertising value.

It is an attractive sales plan.

It is easily understood.

It is absolutely safe.

Its operation is simple and does not entail a large expense.

Studebaker Announces New Six-Cylinder Models

(Continued from page 15)

on the pistons would be relieved and the brakes would be released. The rear wheels can be locked mechanically by depressing the pedal past the hydraulic range.

Radical changes in the shapes of the radiator shells used on the three models have altered the appearance of the cars considerably. This is particularly true of the Standard and Big Six models which have radiator shells which bear little resemblance to those used on these models last year. The radiator shells are all higher, have a nickel plated finish and are provided with wing caps. Motors are regular equipment on all Big Six and on Special Six closed models. The face of the radiator core in convex on all models.

The open cars, all of which are fitted with the new permanent top, are known as duplex models. In the Standard line, the phaeton and roadster are finished in baked black enamel with ivory striping on the hood louvres. These two bodies now have steel panels on a wood frame, the all steel construction used last year on the Light Six having been discontinued. The closed bodies are finished in lacquer, the colors being Navajo gray below the belt line and Seminole gray above, with red striping and black moldings. The Special and Big Six open models are finished in Studebaker blue lacquer with blue and ivory striping. The closed bodies on these two chassis have a varnish finish, blue below the belt line and black above with ivory striping.

The instrument boards on the Standard Six open models have a black satin finish. On all other models, these boards have a walnut finish. Instruments are grouped in an oval under glass and illuminated by a concealed light on all models. The instruments include an eight-day clock, speedometer, ammeter, oil gage and gasoline gage. The brake oil pressure gage is also located in this panel on four wheel brake cars. Ignition switch and choke buttons are conveniently located on the dash in front of the steering column. The accelerator is a ball, a segment of which projects above the level of the floor boards. The dimensions of the driving compartment are the same on all three models. One piece windshields, sun visors, automatic windshield cleaners, foot operated cowl ventilators, and tire carrier with lock which is operated by the same key used in the transmission lock are regular equipment. Interior hardware in all closed models except the Standard Six coupe roadster, is finished in silver. In the Special and Big Six open models, a tool compartment is provided in the door at the left of the driver's seat. The lock on this compartment is also operated by the same key used in the transmission lock. The two larger chassis have aluminum bound running boards, step mats and kick plates, and the closed bodies on them have heaters, smoking sets and vanity cases. The doors of the Big Six closed

Specifications of Studebaker Line for 1925

	STANDARD SIX	SPECIAL SIX	BIG SIX
Wheelbase	113 in.	120 in.	127 in.
Balloon tires	31x5.25	32x6.20	34x7.30
Engine—Number of cylinders.	6	6	6
Bore and stroke.....	3½x4½	3½x5	3½x5
Valve arrangement	L-head	L-head	L-head
Piston material	Cast iron	Cast iron	Cast iron
Number of main bearings..	4	4	4
Oiling system	Pressure	Pressure	Pressure
Electrical system	Wagner-Remy	Wagner-Remy	Wagner-Remy
Clutch	Single Plate	Single Plate	Single Plate
Gearset	Three speed	Three speed	Three speed
Universals	Fabric	Metallic	Metallic
Rear Axle	Semi-floating	Semi-floating	Semi-floating
Reduction open models.....	4.6 to 1	4.36 to 1	3.69 to 1
Closed models	5.1 to 1	4.36 to 1	4.36 to 1
Brakes—Service	Rear wheels	Rear wheels	Rear wheels
Hand brake	Transmission	Transmission	Transmission
Four wheel brakes.....	Optional	Optional	Optional
Steering gear	Worm and wheel	Worm and wheel	Worm and wheel
Spring—Front	36x2 in.	38x2 in.	38x2 in.
Rear	50x2 in.	56x2 in.	56x2 in.

models have walnut panels. Nickel bumpers and snubbers, front and rear and extra tire, tube and cover are regular equipment on the Big Six.

NEW BOOKMOBILE TO AID FARMERS

A service of growing importance to the rural resident, which may be attributed directly to the development of the motor truck, is the traveling library.

Many of these libraries have been put in service within the last few years and a steady advance is noted in the style and convenience of the vehicles.

One of the finest examples of the library on wheels yet evolved was recently placed in operation by Multnomah County, Oregon. This specially con-

structed library has shelf space for 450 books and comfortable standing room for five persons. The spacious and attractive body is mounted on a Graham Brothers truck chassis. The body, also built by Graham Brothers, was in part designed by Miss Anne Mulheron, county librarian.

The county library has placed an order for new books of fiction, travel and other popular subjects in large quantities to fill duplicate orders. Miss Mulheron has consulted faculty members of the Oregon Agricultural College about books of especial value to farmers, relating to the culture of fruit, nuts, vegetables, dairying, beekeeping, stock raising and similar subjects, and hopes to make this a vital part of the college extension service.

25 Years Ago In the Automobile Industry As Recorded In MOTOR AGE

(From MOTOR AGE of Sept. 19, 1899)

Railway Inspection Motor Cars

Inspection hand cars used on railways will probably be very generally discarded in favor of cars provided with gasoline motors. The Illinois Central Railway Co. has been experimenting with a motor inspection car weighing 300 lbs. which with three passengers has run 75 miles in two hours, consuming one gallon of gasoline. The Santa Fe, the Burlington and Missouri River, the Canadian Pacific and Chicago & Northwestern railway companies are all contemplating the adoption of motor cars of the same or similar pattern.

Massachusetts Making Automobiles

The Massachusetts Motor Vehicle Co. of Lynn, Mass., John C. Welch, manager, has completed a vehicle provided with motor made by St. Louis Gas Motor Co. It is said to run well. Twenty different styles of automobiles are reported to be completed or in process of construction in and around Lynn.

Climb to Lick Observatory

SAN JOSE, Cal., Sept. 14.—President David Starr Jordan of Stanford University went up above the clouds yesterday in an automobile. He traveled to Mount Hamilton, calling upon Director James E. Keeler, of the Lick Observatory. The altitude was 4,200 ft.

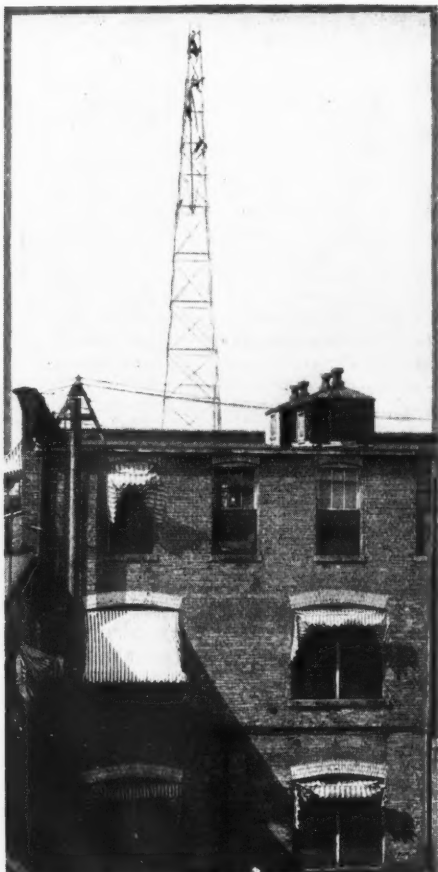
To Manufacture in Omaha

The Omaha Gas Engine & Motor Co. is the style of a firm which has purchased a large building in Omaha where machinery will be installed for the manufacture of gasoline motor wagons constructed according to plans of Naval Constructor Clover, stationed at Tampa, Fla. R. P. Sharples and S. W. McKee of Omaha are mentioned as members of the firm.

Simple Swiss Traffic Rules

Cantons Geneva and Pays de Vaud of the Swiss republic have ratified regulations for motor vehicle traffic. The two cantons agreed readily upon the same rules. They are very brief and simple and appear satisfactory to all concerned.

MOTOR AGE'S PICTURE PAGES



Radio fans may soon tune in and listen to the merits of the Reo car via the ether, for the company plans to have its broadcasting station in operation this fall



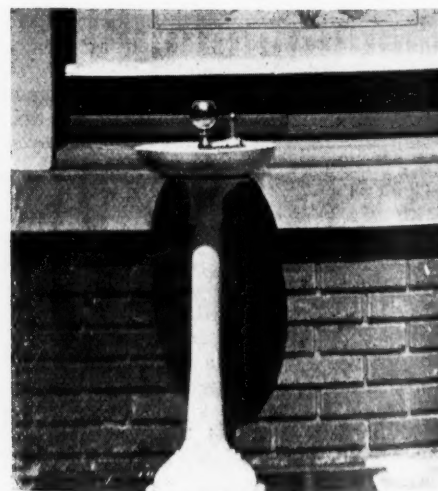
Connecting St. Louis and Kansas City, is the new state highway bridge just dedicated at Boonville, Mo., crossing the Missouri River, and the longest structure in connection with a state concrete road ever built. It cost more than \$600,000



Mrs. Nell Wanderwell, whose name appears to be appropriate for her Around-the-World tour, uses a Bosch two-tone horn to sound warning signals in all parts of the earth. In Berlin she was fined all of 250,000 marks, or 15 cents, for blocking traffic by attracting large crowds

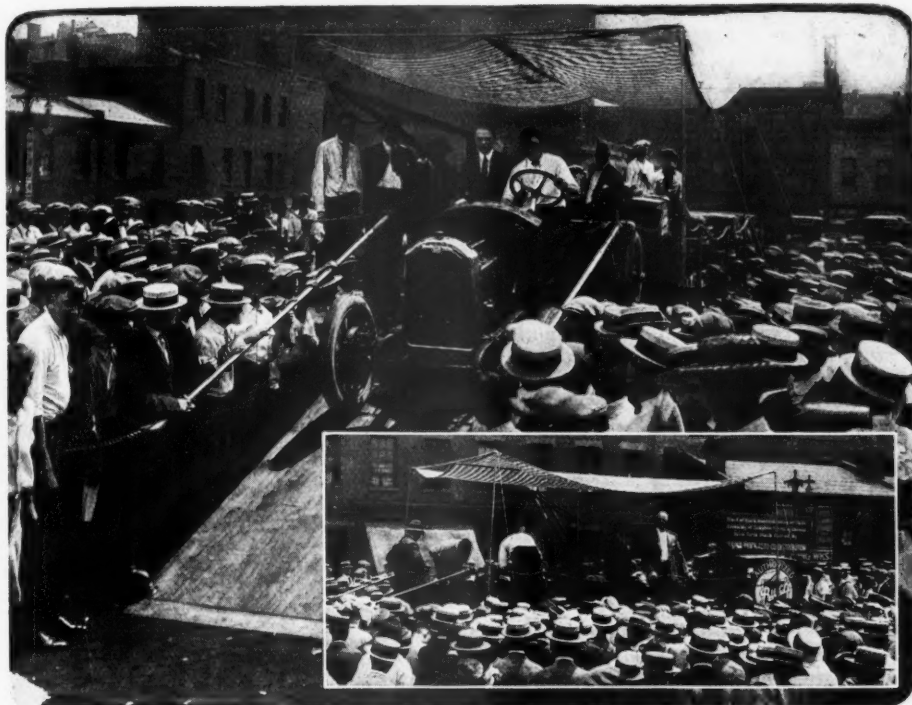


Here is a rubber company that capitalized a blow-out. A tornado blew out the show window of the Des Moines branch of the Fisk Rubber Co.



A drinking fountain in Moline, Ill., built from half a Ford axle and a street car bell

OF AUTOMOTIVE INTEREST



Forty-five minutes were required to build this Buick in a St. Louis street. When the chassis was completed it was driven off the platform under its own power

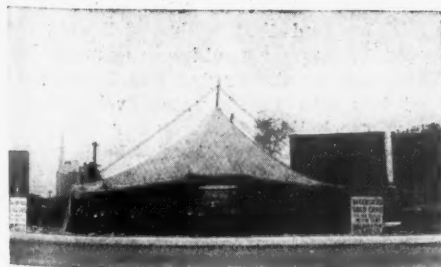


This is David Gregg of the U. S. Army Air Service who designs the superchargers used on the speedy Duesenberg racers. The winner at Indianapolis this year was so equipped

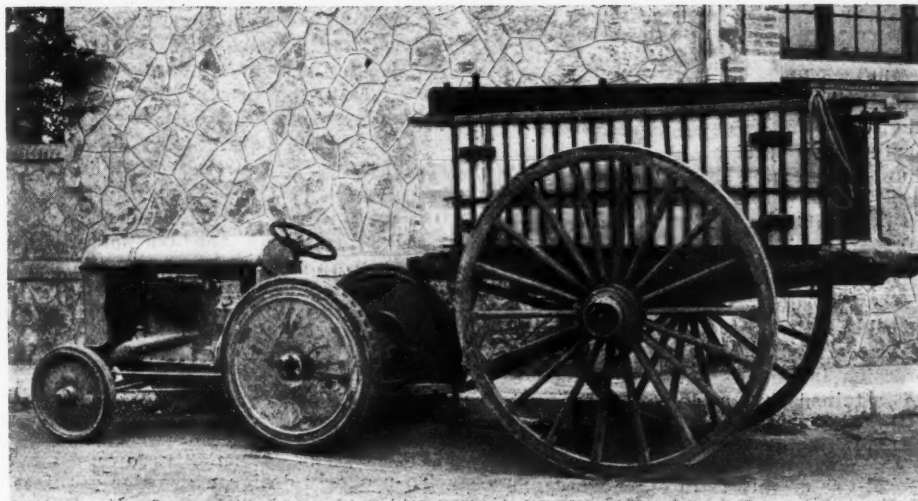


"Freddie," the trained seal of movie fame, seated in the Kissel which won the cup in Class 4A of the 1924 Yosemite Economy Run. He appears to be perfectly oriented, as the psychiatrists would say

Maybe they load anvils in the cart. Anyway, it must be something heavy to require a Fordson to pull it around



Here we have another solution of the used car problem. The Oakland Motor Car Co. of Kansas City sold them in a tent, erected near its new building in course of construction



The READERS' CLEARING HOUSE

Questions & Answers on Dealers' Problems

On Racers and Superchargers

Q. I would like to have some information about the superchargers used so successfully by Duesenberg at Indianapolis this year, if such is available.

This information was given in the June 5th, 1934, issue of MOTOR AGE.

Q. What is the speed with reference to motor speed?

The supercharger ran $4\frac{1}{4}$ times crankshaft speed. This was stated as 8 to 1 in the June 5th article, but this was a mistake.

Q. What degree of vacuum is imposed on the carburetor and what pressure furnished the motor at motor speeds of 3000, 4000 and 5000 r. p. m.?

The supercharger was capable of producing a difference in pressure of $2\frac{1}{2}$ lbs. This pressure was obtained at 4800 r.p.m. and was less at lower speed.

Q. What is the driving means and does the apparatus run continually, or only at high motor speeds?

It runs continuously and is driven by an epicyclic step up gear.

Q. Is any provision made to protect the turbine from the effects of sudden acceleration and deceleration of the motor?

No, the rotating portion is made very light weight so that no harm results.

Q. About what is the power consumed in driving the supercharger?

About three horsepower or less.

Q. Where can we secure a small turbo-blower suitable for use as a supercharger on motors of from 122 to 200 cu. in. piston displacement?

This information will be given by letter.

Q. What is the total pressure rise necessary to give a noticeable improvement in the performance of a motor of the Fronty-Ford type?

This is a matter that will have to be determined by experiment. From the above answers, however, it would appear as if $2\frac{1}{2}$ lbs. should be obtained, for the benefit would need to be sufficient to more than overbalance the power consumed in driving the supercharger.

Q. Do you think a Ford could be made strong enough to stand the additional strain imposed by the use of a supercharger? Would it be better to use a motor of smaller bore such as an Oakland?

The weakest point is the crankshaft and the main bearings. With this fact in mind an engine could be selected which has a heavy rigid crankshaft or a large number of main bearings. Additional suggestions will be given by letter.

Q. Would the use of a supercharger acting at high speeds only affect the permissible compression rate in the benzol-gas mixture if used?

The use of a supercharger makes it possible to get more fuel in the cylinder and accordingly the same degree of compression in pounds per square inch can be attained by a lower compression ratio.

Q. In an ordinary motor about what is the maximum compression ratio using benzol-gas mixture? In other words, how high can the compression be carried in

The Readers' Clearing House

THIS department is conducted to assist dealers and maintenance station executives in the solution of their problems.

All questions are answered direct by letter, so the name and address should be given in full. This saves waiting for the answer to be published, which sometimes occurs several weeks late, depending upon the space available.

Readers' names will not be published with articles, if a request to this effect is received with the letter.

Inquiries not of general interest will be answered by personal letter only. Emergency questions will be replied to by letter or telegram.

Also state whether a permanent file of MOTOR AGE is kept, for many times inquiries of an identical nature have been made and these are answered by reference to previous issues.

Addresses of business firms will not be published in this department but will be supplied by letter.

Technical questions answered by B. M. Ikert, P. L. Dumas and A. H. Packer; Legal, by Wellington Gustin; Paint, by G. King Franklin; Architectural, by Tom Wilder; Tires, by a Practical Tire Man; General Business questions, by MOTOR AGE organization in conference.

a well designed motor without producing detonation, pre-ignition or kindred evils?

This seems to vary somewhat with the number of cylinders used being about 6 to 1 in a four cylinder engine and about $7\frac{1}{4}$ to 1 in an eight cylinder engine.

Q. Do builders have trouble with warping of cylinder walls from the excessive rate of heat transfer, as in the case of Diesel engines?—Robert H. Wamsley, Beverly, W. Va.

Trouble is not experienced with the cylinder walls except occasionally, due to local heat, where heat is not transferred equally from all parts of the cylinder. Many engines of this type have a large bronze bushing built in the crankcase around the main bearing, this bronze bushing or insert serving to conduct the heat away from the bearing and fins are also used frequently on connecting rod caps and also on the bottom of the crankcase in order to cool the oil.

HOME MADE GROWLER GETS HOT

Q. We have made a growler to test generator armatures that operates on 110 A. C. Current. So far we have not been able to wind it so that it would not heat. Please advise us what size wire to use and how many turns to put on.—M. D. Palmer Garage, Mason City, Iowa.

To properly design a growler requires considerable engineering experience. Any

growler will heat up somewhat, but excessive heating will be experienced if the iron core is not laminated or made of layers of iron. The wrong kind of iron will cause heating; if laminations are too thick, it will cause heating while improper size of the whole iron core or of the wire used will also make the growler run hot. If you will give us a drawing showing the details of your construction, we might be able to give some general information that would prove helpful. Under most circumstances, it is advisable to purchase a growler from concerns experienced in this work rather than use your time, which could be devoted to extending your business.

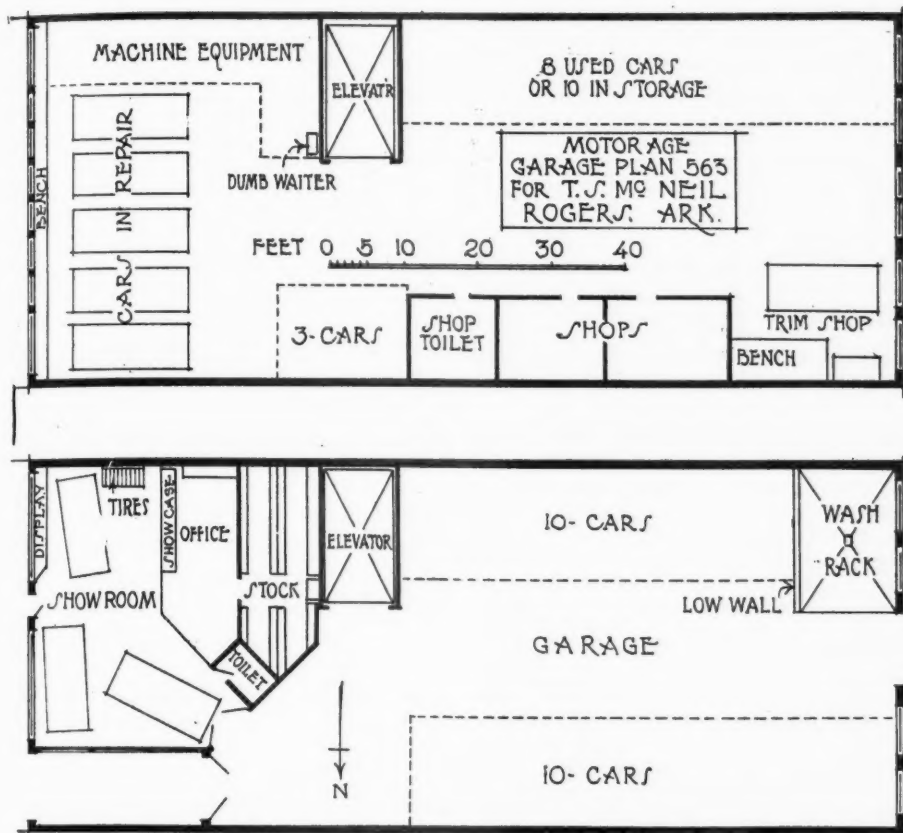
CUTTING DOWN THE FLYWHEEL

Q. We have a type 51 Cadillac 8 which we use for a service car. This car has just been overhauled and new pistons, rings, pins and bearings have been put in the engine. The motor runs perfectly, but it has no getaway. Let us know if it would help some to cut down the flywheel, as this motor uses a very heavy flywheel. Also give information on how to determine the weight of a flywheel used on automobile motors. We have checked the valve and ignition timing over and found them correct. This motor never did have any getaway between the speeds of 15 and 35 miles per hour. The motor is now reground to .075 inches oversize. The present weight of flywheel is 67 pounds, less clutch housing or clutch.—Fast Garage & Machine Shop, Hustisford, Wis.

On page 382 of the Gasoline Automobile, volume one, by P. M. Heldt, we find a formula which states that the weight of the flywheel should be approximately $8.4 (bl)^2$ pounds. In this

formula b is the bore, l the length of the stroke and r is the flywheel radius. On the same page formula for the diameter is given as $d=3.3 l$. As this model 51 Cadillac had a bore of $3\frac{1}{8}$ in. and $5\frac{1}{8}$ in. stroke, we multiply the stroke by 3.3 and find that the flywheel diameter would be approximately 16 in. This is just an approximate formula and the flywheel may be larger or smaller. With this diameter we have a radius of 8 in. and substituting these values in the formula we find that a flywheel weighing about 32 pounds would be recommended. Inasmuch as the engine has 8 cylinders and has a power impulse every 90 degrees, we believe that you can take considerable weight off the flywheel, reducing it perhaps 30 or 40 per cent. The general effect of cutting down the weight of the flywheel on any car is to make it pick up better but also makes it run less smoothly at low speeds. For example, on a Ford car leaving out the magnets will permit the car to throttle down to eight or ten miles per hour where it might have throttled down to five or six miles per hour with the magnets in.

Building Remodeled and Brought Up to Date



Q. I have noticed for several years you have been of very great assistance to dealers in helping them plan their buildings, both new and remodeled, and wish to state that I have in mind a building to be remodeled for use as sales and service, also storage and garage. I have drawn a rough sketch showing size of building and wish to state that I want show space for three cars and that storage space for about 40 or 50 cars. I work 4 men in the shop. This building is used as garage and has entrance in center of building, which space is for showroom, and I want a nice showroom and office also. I want to arrange the inside so I will be able to use it all to the best advantage. I had in mind to have a drive in or entrance on the north of 20 ft., and to have a showroom 40x50 ft., and put the office in there and then have parts room directly back of showroom and office and have lavatory back or between parts and stockroom and I want it modern throughout. It was my idea to put the shop and used cars upstairs and use first floor for oiling and greasing cars, and also for washing and minor repairs and to use the second floor for main shop. Also would like to have some information in regard to elevator, there is one in the building now, but it is not an electric. Also I will want to use some of front windows for display for accessories. I want as much light as possible, so I thought I could put the upper part of partition between showroom and stockroom out of glass.—T. S. McNeil Auto Company, corner Elm and Arkansas streets, Rogers, Ark.

We have disregarded columns and any interior partitions that cannot be changed because you have given us no idea of what or where they might be and for this reason you will probably be obliged to alter the layout more or less unless you are lucky enough to have a building the second floor of which is supported on girders and the roof on trusses. You would do well to retain the section of the lower floor back of the stockroom for storage only, as even with glass in the upper part of the partitions as you suggest, there would not be light enough for any kind of work. The extreme rear, of course, would receive good light from the alley and would be a good location for wash rack and greasing pit, we recommend pit because of its saving in space and because the space is usable for storage when not being used for greasing. The wash rack is also of such proportion that it can be used for storage when no washing is being done. The storage capacity will fall considerably short of 40 or 50 cars unless you use both sides of the second floor, eliminating the small shops intended to give trim, battery, electric and radiator service, or whatever you desire. Quick service could

be taken care of by the greasing pit, which would be very convenient for brake service and other underside jobs. We do not know what kind of elevator information you want, but would suggest that you install an elevator large enough to be practical, 18x10 ft. would be a good size. This will take anything but longest truck. You probably have a stairway already installed, which will answer your purpose and consequently we will not suggest a location.

PUTTING IN LARGER VALVES

Q. I have been requested to install a set of larger valves in a 1923 Dodge. How much larger than the present size valve is it safe to ream out the valve seat and will a larger valve require reaming out the valve guides? Will the present oiling be sufficient to take care of the increased charge of gas?—F. Rosseau, 114 Maple Avenue, Bala, Penn.

The only limitation in putting in larger valves is the clearance available and you should check the clearance between the valves and also at other points around the valve. This can readily be done when the cylinder head is off for the purpose of cleaning out carbon. For example, if you have a quarter of an inch clearance between the two valves, you could use a valve $\frac{1}{4}$ inch larger on the intake side and $\frac{1}{8}$ inch larger on the exhaust side. You will not have to ream out the valve guides if you can get a valve which has the right size stem. The various valve makers usually have a sufficient variation in the kinds which they make so that they can supply your needs. The oiling system will be O. K. with larger valves.

NO JUICE AND AN OIL LEAK

Q. We recently overhauled a Marmon, 4 passenger roadster, model 34, car serial No. 418578. New parts were substituted for those showing signs of wear while new packing and gaskets were also used. The car was recently tested out and showed satisfactory results, except that there is excessive oil leakage around the flywheel. All packing and gaskets appear tight. Yesterday on a run of about 120 miles more than three gallons of oil were lost.

The oil pump is located at the rear of the motor, one of the gears being driven by the camshaft. There is a possibility of leakage at the oil pump or at the oil lines. As the flywheel of this model is exposed it would be well for you to clean off the motor very thoroughly and dry it so that the place where the oil is leaking can be seen. Then run the engine for just a minute or two and shut it down and see if you can tell where the oil is getting out. You may have to use a mirror to see all parts of the engine where oil might possibly be escaping. In this way you can probably locate the difficulty better than we can guess.

Architectural Service

IN giving architectural advice, MOTOR AGE aims to assist its readers in their problems of planning, building and equipping, maintenance stations, garages, dealers' establishments, shops, filling stations, and in fact, any building necessary to automotive activity.

When making request for assistance, please see that we have all the data necessary to an intelligent handling of the job. Among other things, we need such information as follows:

Rough pencil sketch showing size and shape of plot and its relation to streets and alleys.

What departments are to be operated and how large it is expected to be.

Number of cars on sales floor.

Number of cars it is expected to garage.

Number of men employed in repair shop.

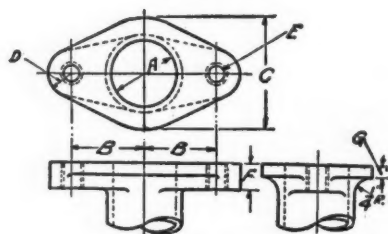
How much of an accessory department is anticipated.

Data on Carbureter Flanges

Q. We would like to have information showing the flange dimensions of the carbureters on the various cars and trucks where they fasten on the manifold.—Knowlton Super-Carburetor Company, Box 433, Sioux Falls, S. D.

We are showing various S. A. E. standard carburetor flanges. In addition to this information you will need to know the nominal carburetor size used on various cars. This information can be obtained by writing to the specification department, Automotive Industries, 239 W. 39th street, New York City. In requesting the nominal carburetor size you should advise them whether you wish this information for cars and trucks of the current year or for several years back.

CARBURETOR FLANGES
S. A. E. Standard
Two-Bolt Type



Nom. Carburetor Size	A	B	C	D	E ¹	F ²	G ³
					Diam.	Threads Per Inch	
1/2	1 1/16	2 1/16	1 7/16	9/16	1 1/4	20	9/16
3/4	1 1/8	2 1/8	1 7/8	9/8	1 1/2	18	9/8
1	1 1/4	2 1/4	2	1 1/4	1 3/4	18	1 1/4
1 1/4	1 5/8	2 5/8	2 1/4	1 1/2	2	16	1 1/2
1 1/2	1 7/8	3	2 3/4	1 3/4	2 1/4	16	1 3/4
1 3/4	2	3 1/4	3	2	2 1/2	14	2
2	2 1/4	3 3/4	3 1/2	2 1/4	3	14	2 1/4

It will be observed that the two bolt flange is most commonly used and is standard on sizes up to and including 2 in. Starting at 2 1/2 in. the four bolt type is standard. The exception is in the use of the three bolt type which is used almost exclusively where side outlet carburetor is used, the attachment in such cases being directly to the side of the cylinder block.

FLUX FOR SOLDERING

Q. I understand that hydrochloric acid in which zinc has been dissolved is a good flux for soldering, but will you please tell me where to get the zinc and how much zinc should be put in a certain amount of acid. What should the acid be in when the zinc is put into it? How large should the zinc chips be? Please tell me if hydrochloric acid and muriatic acid are exactly the same thing. Also name the various metals that this flux is suitable for.—Carlos Farris, Tilford, Ky.

Hydrochloric acid is the same as muriatic acid and is a good solder flux when zinc has been dissolved in it. As much zinc is put in as the acid will dissolve

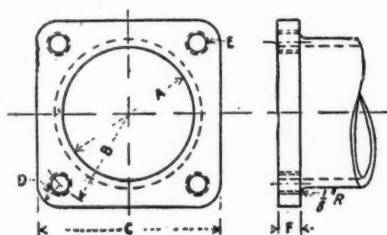
and the acid can be kept in a glass or porcelain container. In the average automobile service station, however, flux of this kind is not used to any great extent, for considerable soldering work has to do with putting terminals on wire and other work on the electrical system. Here the acid is detrimental, for it is a conductor of electricity and is likely to produce short circuits. This is particularly true in doing soldering work on a generator, starting motor or other electrical apparatus. Zinc can doubtless be obtained from any large electrical supply house, or through wholesale drug concerns. We believe it would be advisable, however, in most cases to use prepared fluxes which come in the form of paste and usually contain rosin.

Where heavy soldering is being done around a car as in the case of soldering a battery ground connection to the frame the cut acid as it is called will work in very well for it acts on iron and steel better than most patent fluxes. A welding torch or a blow torch is suitable for heating the frame when such a connection is to be made. In many cases the frame is merely coated with solder and the terminal then bolted on.

HOT ENGINE WILL NOT START

Q. We have a Chevrolet truck, model T 1920, that is very hard to start when it is hot, that is, when heated to a point where the water boils. The following has been done with no success. Installed complete set of wiring harness including all distributor wires, put on new coils and new ignition switch, also checked timing but with no results. We believe it lies in the intake manifold or carburetor, as when motor is fairly warm the carburetor

CARBURETOR FLANGES
Four-Bolt Type



Nom. Carb. Size	A	B	C	D	E ¹	F
					Diam.	Threads Per Inch
2 1/2	2 1/16	2 1/16	3 3/4	7/16	3/8	16
3	2 3/8	2 3/8	4 1/4	1/2	7/16	14
3 1/2	2 7/8	2 7/8	4 3/4	9/16	1/2	13

¹U. S. Standard thread. All dimensions in inches.

must be choked in order to start the motor. A Zenith carburetor with governor was used.—Phelps Motor Company, Dupont, Illinois.

You went to a lot of trouble on the ignition when you could have removed a wire from a spark plug and held it near the engine to see if you were getting a spark. If so, change in wiring, ignition switch and coil would not be necessary. The Zenith carburetor starts best when the throttle is barely opened, as there is

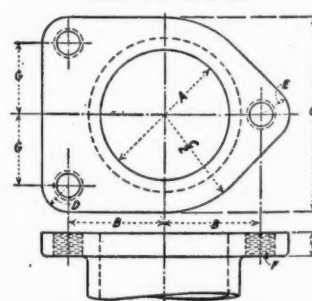
a by-pass for idling which supplies both gasoline and air to the intake manifold when the throttle is closed. You might try cranking the engine by hand to see how the compression is when the engine is very hot. It is possible that the valve adjustment is too close and the valves are holding open when hot. It occurs to us as a possibility that the gasoline line may be near the exhaust manifold and if so there may be enough heat to evaporate the gasoline and cause a pocket of vapor which prevents free flow of gasoline to the carburetor. Another possibility is that expansion of the bolts holding the intake manifold in place permits an air leak when the engine is hot. You can test for this when the engine is running by squirting gasoline around the gasket to see if it changes the operation of the engine.

OIL GROOVES SHOULD BE USED

Q. Give us information that will enable us to stop a bad oil leak at the rear main bearing of a 1923 Durant, four cylinder car. We have had the motor out of the frame and put in a new bearing, but have been unable to stop the leak.—Scraper Sales Co., Otwell, Indiana.

Properly fitting a new bearing will usually overcome this trouble but where difficulty of this kind is encountered it is usually found advisable to put spiral grooves in the bearing. These grooves can be cut in with the point of a scraper and should be in such a direction that the rotation of the crankshaft will work the oil back toward the engine. The angle at which the grooves are cut will be the same as if they were left hand threads. Even with the bearing in quite good condition there may be a slight amount of oil getting out at this point and as it works on to the flywheel and is thrown from the rim it has the appearance of being a very serious leak. For this reason it might be advisable to cut a sheet metal cover to put over the flywheel so that any slight amount of oil which does work out of the bearing will not be thrown up onto the floor board of the car.

CARBURETOR FLANGES
THREE-BOLT TYPE



Nominal Carburetor Size	A	B	C	D	E	F	G
						Diam.	Threads Per In.
3/4	1 1/8	1 1/8	1 3/4	3/4	3/4	1/4	24
1	1 1/4	1 1/4	1 3/4	3/4	3/4	1/4	24
1 1/4	1 3/8	1 3/8	2	7/8	7/8	1/4	18

All dimensions in inches.
S. A. E. form of thread.

Washing Out Buick Clutch

Q. We have recently been having trouble with a Buick six 1922 model in which the clutch seems to drag so that we cannot shift into low gear, without clashing. After gears are once meshed, however, we have no further trouble with the other shifts. Has this clutch any adjustment for the clutch brake or is there any remedy for stopping this condition?

This clutch has no clutch brake and operates dry. There is a possibility that grease has in some way got on the clutch surfaces and is causing the plates to drag. If this is the case it can be remedied by removing the inspection cover and washing the clutch with turpentine. The turpentine will drain through a hole at the bottom of the flywheel housing. Another possibility is that the car is used rather infrequently in which case it has sometimes been found that the brake lining and the metal discs will seem to freeze together, so that considerable effort is needed to separate them. If this is the case the remedy is to jack up one rear wheel and then get in and start the engine. The transmission can then be put in high and the clutch pedal depressed and the brakes gradually applied. This load will serve to break the clutch plates loose after which no trouble should be experienced.

Testing Bearing Fit With Oil Under Pressure

Q. We also have a Paige 6-66 which uses too much oil. We have taken up the bearings and put in special piston rings in the top grooves. The other rings are in good shape apparently (plenty wall tension) and pistons are not too loose. The oil pressure is high when starting cold but only runs at about 10 lbs. after engine is warmed up and running about 25 miles per hour. We believe this is not quite enough pressure considering that the bearings are tight and bearing shims all O. K. Would you recommend drilling pistons to stop the excessive use of oil? What do you think about the oil pressure?—W. G. Stucke, Stucke Garage, Ninth and Jefferson, Beardstown, Ill.

We doubt if you can be sure of the fit of the bearings without making a test. The test recommended is made by using a special oil tank capable of standing considerable pressure. This tank can be of about 1 gallon capacity and should be about half filled with oil. The regular oil pump which drives oil to the main bearings and the connecting rod bearings should be disconnected and this special oil tank connected to the lubrication system. Air pressure should then be applied to this special tank which will serve to drive oil through the system, just as would be the case with the engine running. With this test however, the lower pan of the engine may be removed and someone with a light may then inspect the bearings to see whether the same amount of oil is leaking out from each bearing. If for example there is a very heavy flow of oil at one bearing it shows that the fit is poor even if inspection seemed to indicate that the bearing was properly fitted. This would both account for the excessive oil consumption and also for the low lubrication pressure. The oil pressure should be 15 lbs. If the

oil is dripping slowly from each bearing and there is no heavy flood of oil from any one bearing then it might be well to use one of the well known methods of drilling the lower ring groove. You mention that some of the piston rings have plenty of wall tension. We wonder what method you have of checking this for when piston rings have run 8000 or 10,000 miles they usually need replacing due to loss of tension.

A CYLINDER THAT CRACKS REPEATEDLY

Q. We have a general utility 1½ ton Kissel truck, 1919 model, which is in fine shape except for the cylinder block. A year ago the block cracked on top and let the water seep into the oil on top of the piston. We secured a new block and used it only about three months and it cracked at the top of one of the pistons. We have a man here that does welding on cylinder blocks. We have changed and welded this cylinder block three times, and sometimes after running only a day or so the cylinder block will crack again. Usually the crack is in a different cylinder, but once it cracked in the same place where it was welded. We change the oil in the crankcase every third day.—C. A. Heck, Falls City, Neb.

One possibility is that the cylinder is not properly welded. To do the job right the whole casting should be preheated and after the weld is complete the cylinder block should be covered and allowed to cool slowly. This is necessary to prevent warping and also to prevent the casting being hard and brittle which would induce cracking. Another possibility is that the engine has been allowed to freeze up in winter and that the casting is thereby weakened. A third possibility is that the material in the casting itself is defective in which case a new cylinder block would be the only remedy.

PAINTING WITH A GUN

Q. I am going to use an air brush for painting cars. Could you give me some information about the kind of paint to be used? Would I have to put turpentine in the paint or what should I get to thin it out?—John DeHondt, Sodus, N. Y.

Material used in thinning will depend on the kind of material being used. In putting on the first coat and the color coat you can use turpentine. If you are trying to spray color varnish you can use rubbing varnish. If you are trying to spray enamel you would use finishing varnish. In general paint applied in this way will have to be thinner than applied with a brush, for considerable evaporation takes place as the spray leaves the nozzle. There is also some tendency for the surface to be pebbled or slightly uneven, much as stucco appears when applied to a house. For this reason the use of the spray gun for applying the final varnish coat has not met with complete success in all cases and it is generally considered advisable to put on the last coat with a brush. It would be well to get the recommendation of the manufacturer whose paint you are using as to the best method for applying their product when a spray gun is used.

A Hot Time in the Old Car

Q. We have a 1919 Dixie Flyer which we recently overhauled. This motor insists upon boiling and did this before we overhauled it. The timing is correct and the valves are properly adjusted. The radiator and water jackets are not limed up. In fact there is no detail of the engine that we have overlooked, but it still boils.—Clarence Preston, Jacksonville, Ill.

Perhaps you are operating this car with the carburetor adjusted to give too lean a mixture. A lean mixture causes considerable heat and may produce the boiling to which you refer. Another cause is having the spark too much retarded. You might check this spark not only in the retard position but also in the advanced position. In the retard position the interrupter points should open when the piston is about on top dead center or a trifle down from the top dead center position. In the advanced position the interrupter points should open about 3 or 4 inches early on the flywheel. Perhaps the control rods are slipping so that the spark is not advanced when the levers are moved. Another possibility is that the hose connections are worn and that a piece on the inside of the hose is loose and partially stops up the water passage. Another possibility is that the radiator is coated with lime although it may not appear to be coated. We would suggest, if possible using another radiator of similar type and if you have no other radiator exactly right you might try one about the same size and make some temporary installation, merely to see if this does any good. Another possibility is that the valve tappets are adjusted too close and when the engine gets warm the valves are held open. This is not very likely however, if the engine operates properly, but would tend to produce some heating action. You might also check the compression by turning the engine over by hand to see if it is good in all cylinders and will cause the crank to spring back when released.

DATA ON VOISIN

Q. Could you give me the S. A. E. standards used for bolts and nuts, bell housings, rear axles, bearings material and all the S. A. E. standards used by automobile manufacturers?

Complying with your request would necessitate our giving you a copy of the S.A.E. handbook, so we believe it would be advisable to communicate directly with the Society of Automotive Engineers, 29 W. 39th Street, New York City.

Q. Where can we get the S. A. E. journal?

You can get the S.A.E. journal from the Society of Automotive Engineers, and you can get further information when you write in regard to the first question.

20 INCH SMALLEST PRACTICAL WHEEL

Q. What is the smallest wheel to be used on Cadillac 55 to be reconstructed as a towing car?—Wooddale Garage, Wooddale, Illinois.

The smallest size that would be practicable and the smallest that is in production is a 20 or 21 in. wheel. These may be secured from any of the wood, wire or disc wheel manufacturers.

Oil in the Wrong Place

Q. I have used a dozen or more different makes of piston rings in a model 32, 1917 Oakland trying to stop oil pumping. The cylinders are round and the pistons in good shape. Car has only run 1,000 miles. What will stop this oil pumping? Some claim the oil goes back of the ring, but I do not believe this as I have used rings that would seal the ring groove tightly. These rings had a V-shaped section in the center which caused the ring to spread and fill the ring groove.

One method of reducing the likelihood of oil pumping is to bevel or chamfer the lower corner of the lower ring groove and then drill holes at an angle through the piston so that oil scraped by the lower edge of the lower ring will flow through these holes to the inside of the piston and drop back into the crankcase. One objection to this method is that it reduces the support for the lower piston ring and tends to make it loose in the groove. Contrary to your opinion we believe that it is true that oil does work in behind the piston rings. There is at least one piston ring on the market which takes advantage of this fact and is even designed to induce oil to work in behind the ring. Holes are then drilled through the center of the lower piston ring groove to permit oil to work through the piston and drop back into the crankcase. We believe that some such method of draining the oil will prove helpful in your case.

Broaches Make a Good Job Better

Q. Some time ago I asked you about reaming bushings. The best way to keep from having them rough inside, but I never got an answer to that.—John DeHondt, Sodus, N. Y.

With the conventional type of expansion reamer it is necessary to have the blade very sharp and then take light cuts only. If heavy cuts are taken or if the blades are not sharp the reamer will chatter and leave high spots here and there. In fitting a piston pin for example the pin will seem to be a tight fit but after the car has run a few hundred miles it will be loose again due to these high spots wearing down. One or two concerns are now putting on the market reamers having blades set a very sharp angle so that this tendency for chattering is very much reduced. Another method of fitting bushings is by means of broaches and this probably gives a surface which is even better than the one produced by a reamer. Either the broaches or reamers can doubtless be obtained through your local automotive jobber.

NO CHANCE OF GETTING COLD FEET

Q. Here is a problem that sticks me. A 1916 Dodge runs rather hot, especially on hot days. The valves and ignition are timed perfectly, water circulates all right, as seen in the radiator with cap removed. Valves are in good shape and motor clean, rear axle and transmission do not drag and are well filled with good grease. Motor shows excellent power speed and economy, but still overheats. After running several miles the oil pump pressure falls from four pounds at 20 miles per hour to about one-half pound. Oil is changed every 500 miles and shows very little crankcase dilution. Water does not ac-

tually boil, but a man would need to wear asbestos shoes to keep his feet from burning if he drove this car 100 miles on a hot day.

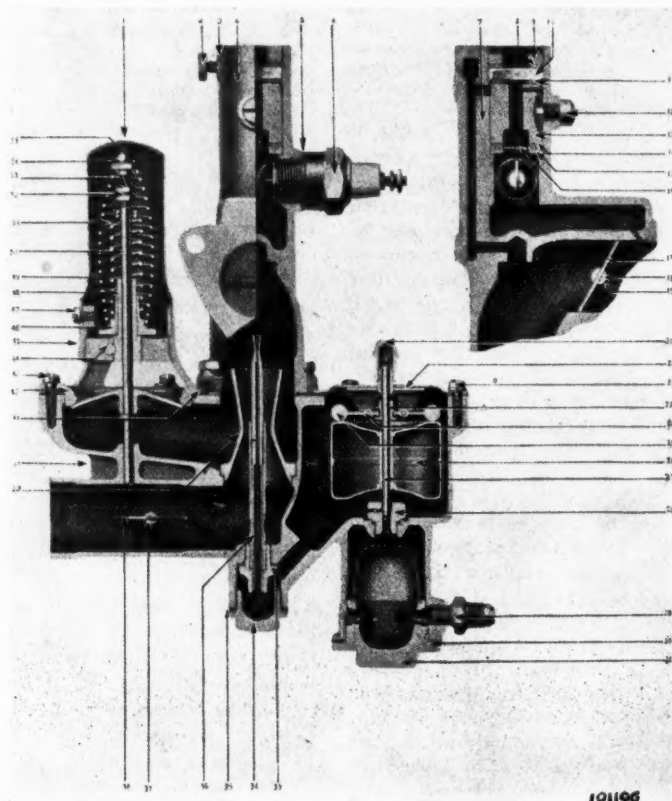
As the water does not boil we would not say that the engine is overheating to any extent, as an automobile engine operates best when its temperature is nearly up to the temperature of boiling water. Also the fact that you are getting ample power from the engine shows that it is operating efficiently. The trouble seems to be that the hot air which comes through the radiator and past the engine is not deflected down under the car but is deflected into the body of the car. We would suggest your cutting additional louvers in the hood or cutting away the pan or taking any other steps necessary to deflect the flow of air down toward the road and away from the floor board. There is just one suggestion we have to offer to reduce the amount of heating which the engine experiences and that is to advance the ignition somewhat. On some Dodge cars an ignition system was used which had automatic advance which apparently did not have enough range to give perfect operation at high speed. For this reason it was customary to advance the ignition somewhat so that cranking by hand gave a slight tendency for the engine to kick back. The starting motor, however, was strong enough to overcome this condition. We know this to be the case from observing a repair job where the motor generator was removed and the chain taken out and the opening covered up so that the owner of the car could drive it while repairs were being made. When he tried to crank the engine he found that it kicked badly so the ignition was

retarded to enable him to drive the car. When he returned to have the motor generator installed he reported that the engine overheated very badly and it had to be again advanced to the kicking point in order to function properly when the motor generator was installed.

Worn Valve Guides

Q. On page 26 of the August 28, 1924, issue of MOTOR AGE you have an item telling of trouble experienced by the North End Garage of Cohoes, N. Y., with valves in a model N Hupmobile. I have driven and repaired one of these cars for a number of years and in the meantime think I have learned a few of its characteristics. Due to the construction of its intake manifold a mixture lean enough to cause valve trouble will require excessive use of the choke to get it warmed up. If the mixture is too rich the trouble is experienced from loading. I think this reader's trouble is due to guides that are badly worn. With the guides worn one can grind the valves, give them the usual adjustment and secure what appears to be very satisfactory results for about 1,000 miles, then they appear to go bad all at once. This is due to the fact that this engine will hit with the valves in poor condition until they scarcely seat at all. In my case with the same trouble the remedy was to ream the guides and put in valves with oversize stems. Other things that helped previously were to use excessive clearances such as .010 in. on the exhaust valves and to use high test gasoline, or gasoline containing solutions designed to eliminate or partially eliminate carbon. I have not found it necessary to use valves other than the regular tungsten or chrome-nickel to get satisfactory results.—E. Earl Beatty, 21 Spring street, Springfield, Mass.

MOTOR AGE wishes to express appreciation for the above solution which will be forwarded to the North End Garage.



BOOSTING ACCESSORY SALES

ALTHOUGH the vacation season is about over, it does not follow that there should be any lull in the profitable sale of accessories by the progressive transportation merchant. With the increase in closed cars the automotive public is in the market the year round despite the approach of inclement weather, and, just as there are some items which appeal peculiarly to the tourist and camper, there are also many items which are designed to add to the comfort and convenience of the closed car owner. So push your accessory sales no matter what the season of the year and incidentally boost your balance at the bank.

The Mallory Ignition Coil

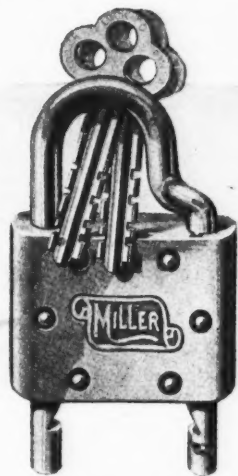
An ignition coil designed for use on practically any modern car is being marketed by the K. M. Manufacturing Co., Toledo, Ohio. This coil is designed to operate on very low voltage so as to give a good spark when winter conditions are encountered and the battery is low. It is constructed with a double primary winding which, it is said, makes it practically impossible for it to overheat and burn out. With the coil unit a condenser is also available, this being provided with a special bracket so that it can be mounted on any make of igniter.



Mallory ignition coil

Miller Padlock

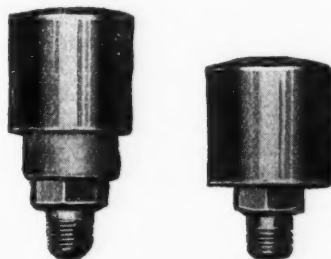
This is designed for use on a wide variety of cars, as the shackle is closed in to fit lugs on tire carriers thus giving the strength of a large lock with a reduced shackle opening. The case and interior parts are made of brass; nicked steel shackle with milled ratchets. There are two corrugated steel, nicked keys to a lock. The shackle opening is $1\frac{1}{2}$ in. adjustable to $\frac{7}{8}$ in. These padlocks are packed in dozen lots in a display container. The manufacturer is the Miller Lock Co., Philadelphia, Pa. The model is 44 C. S.



Miller padlock

Grease Cups Feed Automatically

The Wedford-Critz automatic grease cup feeds grease automatically to chassis bearings. Medium grease is forced into the cups under high pressure by means of a lubricator. As the grease is forced



Wedford automatic grease cups

in the outer casing of the cups is forced upward. The cups, therefore, retain a reserve supply of grease which is automatically fed to the bearings under constant pressure.

An important feature is that the grease is fed to the bearings only when the car is in motion. The vibration of the bear-

ings, due to the motion of the car, causes the grease to be pushed through and over wearing surfaces. The cups require re-filling only every 750 to 1,000 miles. The cups can be used in conjunction with special lubricating system already on the car by removing the lubricating system fittings on the car, screwing the cups in where the fittings were, and then the fittings into the tops of the cups.

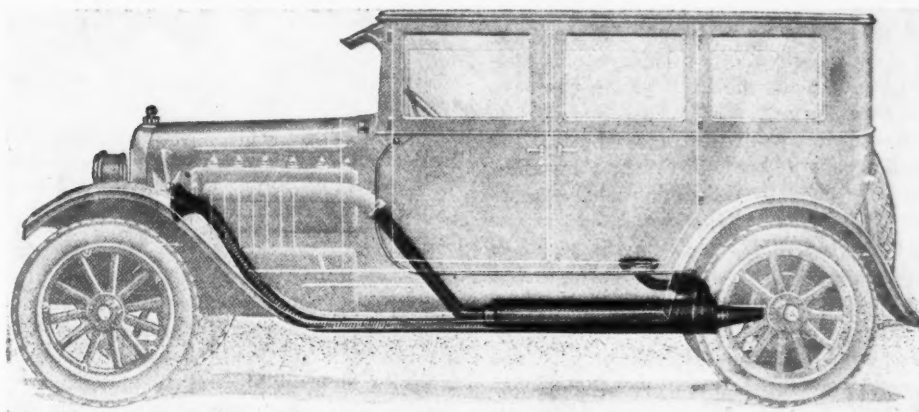
These cups are the product of the Wedler-Shuford Co., St. Louis, Mo.

Kysor Heater Is a Unit With the Muffler

A novel car heater which is said to eliminate the possibility of getting gas fumes into the car has been developed by the Kysor Heater Co. (not inc.) of Allegan, Mich. This heater replaces the muffler and serves as a muffler as well as heater. Instead of heating the air which is already in the car, it heats fresh air coming in and in this way acts as a ventilator as well as heater, the old air in the car being discharged through cracks around doors and windshield.

A two inch pipe carries air into the heater, where it circulates in a small chamber before being delivered into the body of the car through the register. Temperature of the air in the car can be regulated from the dash, through a valve located under the floor. This valve being in the air passage rather than in the exhaust passage is not subject to sticking, for it does not get clogged up with soot.

The inventor of this heater, Mr. Kysor, will be remembered as the engineer who supervised the moving of the whole town of Jennings, Mich., to Cadillac, a distance of 12 miles, by motor truck, and the heater above described is another product of his engineering ability.



Kysor heater

GETTING MORE OUT of the SHOP

FIRST-CLASS shop equipment pays for itself. The facility with which high-class work is turned out with equipment of the proper kind results in increased business and likewise increased satisfaction on the part of both the maintenance shop proprietor and the automotive public he is serving. There is a satisfaction on the part of the workman in knowing that he has done his work well and a corresponding feeling on the part of the customer who knows that his automobile has received the careful expert attention to which it is entitled. It is of the utmost importance, therefore, not only that your shop be adequately manned, but that your mechanics be furnished with the proper implements to turn out work of the highest character—work that you will be proud to acknowledge as coming from your shop.

Starrett Brass Hook and Handle Rule

This is the product of the L. S. Starrett Co., Athol, Mass., and sells for \$3. It consists of a rule with a hook at zero, so that by placing the hook against the work the reading may be made from the scale at the edge. It enables blacksmiths to measure hot pieces and is convenient for measuring through holes or from the inside when held against a corner. It is made of hard rolled sheet brass 1/10 in. thick and 1 1/16 in. wide and has 1/16 in. graduations on each side.

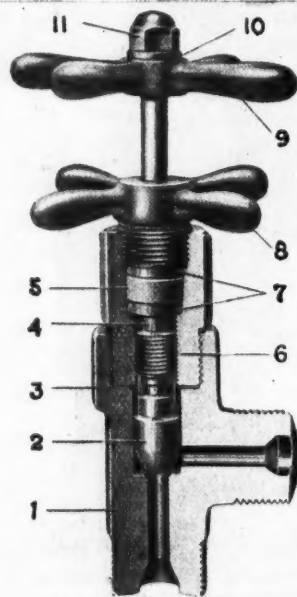


Starrett brass hook and handle rule

New Type Valve for Oxygen Manifolds

A satisfactory valve for an oxygen manifold, which must necessarily carry very high pressures, was the objective of the Oxweld Acetylene Co., 30 East Forty Second street, New York City, in developing its new type of valve. Its construction is shown in the illustration. It has a swivel tip on the stem. The body (1) has a formed seat receiving the stem tip (2). This tip is attached to and carried by the stem (4), by means of a swivel joint. Thus the tip is enabled to seek its own natural seat in the body. The stem screw is in the inner end of the stuffing box (6), which is made gas tight into the body by means of the lead gasket (3). The stem itself is made gas tight by the rubber packing (5) which is compressed between packing rings (7), by means of the hand wheel and nut (8).

This valve is claimed to be absolutely fool proof and the manufacturer makes the statement that if the operator should happen to unscrew the hand wheel all the way, there is no possibility of the in-

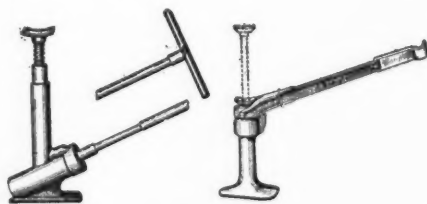


Valve for oxygen manifolds

ternal parts being blown out by pressure, because the stem screws into the stuffing box; that even if he should unscrew both the stem and the hand wheel, the parts could not come out because the large end of the stem would lodge against the inner end of the stuffing box.

Mihag Jacks

These are made by H. W. Felderhof, 906 Willow avenue, Hoboken, N. J. There are two types: the hydraulic and the mechanical. The former has a capacity of 3,500 lbs. and weighs 7 1/4 lbs. It has a malleable iron body, Bordeaux lacquered with nickel cap and handle. Working parts are made of tempered steel. The latter is for light cars, has a capacity of 1,750 lbs. and weighs 4 lbs. It has a malleable iron body, a nickel slider and a handle. It works on an alternating roller system and is lowered with one stroke.

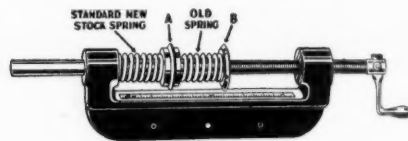


Mihag jacks

Hall's Universal Valve Spring Tester

In using this tool, the springs are placed in the tester alongside of the standard new stock spring. Both of them compress by turning the handle. Sliding spacer "A" should be half the distance to flange "B" on the scale underneath. If the distance measures over 1/8 in. above half distance, then spring has

lost its tension and should be replaced. This tester may also be used to remove or insert the Buick valve stem key. A small attachment supplied with every tester makes it easy to take out locking key with the fingers or drive it through the slot. The tool is made by the Hall Cylinder Hone Co., 433 Dorr street, Toledo, O., and the price is \$5.



Hall's universal valve spring tester

Wonderspread Tool

With one operation of the handles of this tool, two operations are performed. With the first the piston ring is grasped and with the second it is expanded. In this way the work of removing and replacing piston rings is simplified. The tool is distributed by C. T. Thomas, 160 Broadway, New York City, and the price is \$2.50.



Wonderspread tool

Conradson Reamer Has Die Cast Body

A new type of reamer is being put on the market by the Conradson Tool Corporation, the special feature which permits selling the reamer at a low price being the body, which is die cast. The saving made possible by setting the steel blades in a die casting is passed along to the purchaser in reduced cost. The Conradson reamer will be manufactured in all sizes and types (Shell and Chucking from 1 in. to 5 in. inclusive. Sizes from 1 1/8 in. to 1 1/4 in. are available at present.



Conradson reamer

EDITORIAL

Watch Your Money

THE automotive merchant is called upon from time to time by many traveling salesmen, some of whom are welcome and some not. Most of them are honest, intelligent men striving earnestly to build business for their customers, themselves and their employers. They are keenly interested in mutually profitable business relations.

But sometimes there is among them a man lacking in principles whose actions tend to cast discredit upon the calling. We refer particularly to the occasional salesman who makes a "touch" on his customer and then doesn't pay. The "stung" customer is likely to turn to the salesman's employer and expect him to make good the loan. The salesman may have used his employer's name in making the "touch." He may have said, "I'm good because I am with so-and-so," and the dealer may have believed him.

It is hardly fair, however, for the merchant to hold the employer responsible in such a case. Reputable companies employing traveling salesmen make a determined effort to get only men of high character and integrity. But sometimes despite their best efforts they find they have hired a man who is either dishonest or irresponsible. But they don't keep him very long. The employer pays his salesmen their salaries or regular compensation and takes care of their necessary expenses. It is presumed that they are amply financed at all time to take care of their necessary expenditures. Only some unusual circumstance should make it necessary for them to have to borrow money when on the road.

The merchant, therefore, who is approached by a salesman for a loan should be on his guard. He may have known the salesman for many years and thus have absolute confidence in his integrity. If for this reason the merchant is willing to make the loan he should look to the salesman as an individual for repayment, and not to his employer. It should be a personal relation between the two with the salesman's employer in no way entering into consideration.

It is just as important to exercise care in the advancing of money to strangers as in the extension of credit. There is chance to lose and he who takes the chance should not expect some third party to pay for his carelessness.

Advance by Reading

SELF educated men account for some of our most conspicuous successes in both business and professional life. Men who have lacked opportunity in youth to acquire learning in school have applied themselves in early manhood to the task of reading industriously along the line of their chosen endeavor and often their earnestness of purpose has more than made up for their lack of advantage.

The time of year is at hand when reading and study may be indulged in with more comfort and willingness than in the hot months of the summer. The atmosphere now is tinged with thoughts of education. The children are at school. Both are a part of their daily life. The exploration of the fields of knowledge holds them with its charm.

Men who have long since passed from the school room might well emulate the example of the school boys and girls. They might with profit take up the earnest study of how to get ahead in the business or job with which they are now occupied. Careful study will mean progress.

Choice of material to read is important. The man in the

automotive business, of course, wants to read about that business. If he is the proprietor of a business he is interested in how to make more money through better management and getting more business. If he is an employe he is interested in how to make more money by improving his skill and knowledge. Books there are in abundance on all automotive subjects. Select and read those that you need.

And don't overlook your MOTOR AGE which comes every week with enough practical business and mechanical information to keep you "going to school," and entertain you, too, for just as many hours as you can give to it.

Cashing in on Competition

YEARS ago the stage coach was the means of transportation between adjacent and distant towns and villages. Cities there were none. When the first locomotive puffed its toilsome way from town to town, the stage coach drivers were up in arms. Soon they found other work and the horse driven vehicle found its place as a feeder for the railroad, bringing passengers to the station.

Now comes the inter-city bus, carting its load of passengers quickly and cheaply, and the railroads are up in arms. But they, too, are learning that progress need not mean loss. From Minnesota comes the news that a railroad operating trains at a loss between St. Paul and Duluth is beginning to put on gasoline driven coaches, so as to cut the cost of operation and be able to compete with buses using the highways.

Competition forces progress. The locomotive served its purpose and is still doing it, but as a machine for short hauls it is notoriously inefficient and as a noise and smoke producer a notorious nuisance. Its elimination to a greater or less degree will be mourned by few and approved by many.

And now comes the sequel.

In selling cars, repairing them, handling service, the matter of competition has been considered as an enemy, a detriment to the successful running of one's business. But does it need to be so? Cooperation in associations of those in similar lines of business has made available economies not otherwise possible. The railroads are learning from the motor car industry how to operate their own business more efficiently. The dealer can learn from his competitor in like manner.

Profits vs. Volume

IN this issue of MOTOR AGE begins a series of articles on profit in the automotive business. The first five articles will be devoted specifically to the subject of "Profits versus Volume."

Men old in business training long ago have learned that he who sells the most is not always the one who reaps the greatest profit. In the lines of merchandising that men have been engaged in for generations this lesson has been well learned. It has been observed that he who sells the most is the first to fail if his scale of prices is such that it does not return him a net profit.

The business of automotive merchandising is comparatively new. It has not been handed down from father to son. It has recruited its merchants from many walks of life. It has some of the best merchants in the world and some who are not so good. But taken as a whole the automotive merchants are ambitious and eager to acquire all the knowledge that will help them succeed. That is the purpose of these articles.

Dealers Place Cars Fast as Received

Present Output of Factories Goes Straight to Consumers

Signs That Farmer Interest Is Beginning to Develop Somewhat Are Found at Fairs

NEW YORK, Sept. 15.—A slight increase in automobile producing schedules is noted the first half of the month, with promises of further strengthening during the remaining weeks. Employment is showing some gains in both automobile and parts producing centers. Sales are continuing at a fair pace and, with stocks low, dealers are ordering more cars from the factories.

Business has not developed to any extent in agricultural areas although there is some buying at shows held in conjunction with state fairs. Encouraging evidence is being given at these shows of farmer interest and the probability that the farmer will develop into an important factor in sales.

All cars being shipped from factories to dealers are going directly into the hands of consumers. No surplus stocks are being accumulated. Actual consumer demand is governing operations and will continue to be the prevailing element in the upward movement of schedules.

Should September production show a 10 per cent increase over August, as is predicted in some quarters despite the fact that it has one less working day, it would bring output for the month to 295,334, a relatively high figure, not reaching the 327,506 mark of a year ago but mounting well beyond the 207,206 reported in September of 1922.

About Like 1922

Third quarter production, so far, has proceeded more along the lines of the corresponding quarter of 1922, with output averaging 265,676 for July and August, compared with 260,658 in the like two months two years ago. The average maintained in 1923 for those months was 286,567, a figure that was reached through the record made in July, August showing a pronounced drop.

Except for the first few months, the pace followed in 1922 and carrying over into the first two months of 1923 was more nearly normal than the gait into which the industry swung in March, 1923, and continued without let-up through the rest of that year and far into 1924. The industry, therefore, is operating along somewhat higher levels than was the case in the relatively normal year.

The last quarter of 1922 produced an average of 235,008 cars and trucks and it is certain from present conditions in the sales field and the good outlook that the average in the last quarter of this year will be considerably higher.

DAVIS DISTRIBUTORS SIGNED

RICHMOND, Ind., Sept. 15.—The Davis Motor Car Company, of Richmond, has recently added the following distributors: David S. Hendrick, Washington, D. C., and surrounding territory; The Baltimore Motor Co., Baltimore, Md., for this city and Maryland, and Foggstone Motors Co., Buffalo, Schenectady and surrounding territory.

Chandler Quarterly Dividend Cut From \$1.50 to 75 Cents

NEW YORK, Sept. 13.—Directors of the Chandler Motor Car Co., at their meeting this week, reduced the quarterly dividend from \$1.50 to 75 cents a share, which move places the stock on a \$3 annual basis, against a previous rate of \$6 annually.

With the announcement of the halving of the dividends came a statement from the company, which said:

"During the first six months of 1924 the business of the company compared favorably with that of most automobile companies. The outlook for the last half of the year is such as to make us reasonably optimistic. The company is in a sound financial condition and is making the best car in its history, but we believe the best interests of the stockholders will be served by a conservative policy in reference to dividends and feel that the disbursement should be kept well within the earnings of the company.

"There are no excess stocks of Chandler cars either at the factory or in the hands of Chandler retailers, and we are therefore in excellent shape to profit by the revival of business which seems at hand."

Borg & Beck Company Enters New Field of Manufacturing

CHICAGO, Sept. 11.—Signaling an expansion of considerable importance which will take the activities of the organization into fields outside the automotive industry announcement is made that the Borg & Beck Co. of Chicago, makers of automobile clutches, has taken over the A. O. Norton, Inc., with a plant at Boston and A. O. Norton, Ltd., with a plant at Coaticook, Canada.

The Norton factories manufacture ball-bearing and other types of jacks for use in railroad and bridge work and various forms of heavy construction. It is reported that around \$1,000,000 was involved in the purchases. Both plants already have been taken over by Borg & Beck while all directors of the Chicago company have been elected to the Norton board, Harry Norton being retained as a director and president in the two companies absorbed.

Apperson Company Offers to Continue Operation of Haynes

Proposition as Outlined and Favored by Most Creditors Would Restore Pioneer Combination

KOKOMO, Ind., Sept. 15.—Following application made by Chicago creditors asking the Federal court to declare the Haynes Automobile Co. a bankrupt there has been a get-together on the part of the creditors which may result in the two of the pioneers of the industry being hooked up again in business harness.

This coalition is made possible through the offer made to the Haynes directors and creditors at a recent meeting, when the Apperson Auto Co. offered to operate the Haynes plant, continuing the line of cars now manufactured. This met with the approval of the Haynes directors and creditors but the proposal is subject to the approval of the Federal court.

As the plan was outlined, the Apperson interests will lease for a period of five years the physical assets of the Haynes plant, with privileges of a five-year renewal. Don C. McCord, president of the recently organized Apperson company, announced that if the plan should be approved by the court a new corporation to be known as the Haynes Motors Corp. will be organized immediately to operate the plant.

Would Settle With Creditors

A settlement with Haynes merchandise creditors and a continuation of all Haynes commitments to other manufacturers were parts of the reorganization stipulations.

If this deal goes through it will bring together the houses of Haynes and Apperson which started the manufacture of automobiles in 1895 as the Haynes-Apperson Auto Co., the Haynes-Apperson car, designed by Elwood Haynes, being produced by Elmer and Edgar Apperson. They came to a parting of the ways in 1903, when the Appersons formed their own company, the Apperson Bros. Auto Co., making the Apperson, and Elwood Haynes formed the Haynes company, making the Haynes.

An intervening petition was filed in Federal court at Indianapolis on Sept. 12 by three creditors who state that their proved claims against the Haynes company amounted to more than \$6,000. These petitioners are the Chicago Curled Hair Co., Duplex Envelope Co. and the Taylor Trunk Works. They ask to be permitted to join the claimants who originally filed suit. The action creates no material change in the situation. It is understood that a large majority of the creditors are in favor of the Apperson proposal.

Motors Used More Gasoline During July Than Ever Before in a Single Month

WASHINGTON, Sept. 15.—The millions of automobiles, tractors, motor boats, motorcycles, airplanes and other gasoline-driven vehicles in the United States consumed more of this liquid fuel in July than in any previous month in the nation's industrial history, states the Department of the Interior in a review of statistics compiled by the Bureau of Mines.

The domestic demand for gasoline in July amounted to 794,030,852 gallons, representing an increase of 107,000,000 gallons over the consumption figures for June, in which month a new high-record mark had been set.

The production of gasoline during July amounted to 741,974,813 gallons, almost 5,000,000 gallons more than in June, and 105,000,000 gallons more than the output for July a year ago.

Irving Will Make Automatic Shutters Until March, 1925

BUFFALO, Sept. 15.—The Irving Engineering-Sales Co., Inc., its officials declare, has not discontinued the manufacture of the Irving automatic shutter. Its agreement with the Pines Manufacturing Co., reached following a conference on patent litigation, limits the Irving company to the production of 25,000 of these automatic shutters up to March 1, 1925, and the company states that it now is in position to furnish up to this quantity to its distributors and trade.

Answering rumors the Irving company says:

An article appearing in Class Journal publications created an unfavorable impression with reference to the Irving automatic shutter in view of the fact that it intimated that the Irving Engineering-Sales Co. had discontinued manufacturing the Irving automatic shutter.

This opinion is so prevalent in the trade that in some cases, in view of this article, it is difficult to convince the trade that the Irving automatic shutter will be presented to them and to the public this season.

According to the arrangement made between the Irving Engineering-Sales Co. and the Pines Manufacturing Co., in view of contentions on both sides, an agreement was reached which is equitable not only from the viewpoints of both concerns, but also for the distributors and dealers in the field. It is true, however, that according to terms of the agreement that the Irving Engineering-Sales Co. limits its production to 25,000 automatic shutters up to March 1, 1925, and is in position to furnish up to this quantity to its distributors and trade.

The Irving Engineering-Sales Co. is doubly alive this year, as it is not only producing and marketing the 100% automatic shutter, but has strengthened its line through the addition of the new Arctic hand-operated shutter, a worthy running mate for the automatic.

DIE CASTING ALUMINUM

DETROIT, Sept. 15.—Ford Motor Co. is now die casting aluminum on a large scale at the Highland Park foundries.

CLIFF DURANT TO SEA

OAKLAND, Cal., Sept. 15.—R. C. (Cliff) Durant, racing driver and yacht enthusiast, left here recently for Los Angeles to make final preparations for his departure for Honolulu in the 144-foot schooner Aurora.

The trip was originally planned to include a tour of the South Seas for a voyage that would consume several months. Business pressure caused a change in these plans to include only Honolulu.

Canadian Ford Produces 63,554 Cars During Year

DETROIT, Sept. 15.—The Ford Motor Co. of Canada manufactured 63,554 cars, 14,672 trucks and 3,773 in the year ending July 31, 1924. This total of 81,999 compares with 70,328 in the preceding year and 45,000 in the year ended July 31, 1922. Sales totaled \$38,556,182, against shipments of approximately 71,000 units or \$543 a unit.

While net profits have not been given out as yet, it is expected that despite the larger production they will not be as high as the preceding year. Higher costs are said to have materially reduced profits, so that it is said the total will be about \$4,200,000 in comparison with \$5,400,000 the year before. This would make the returns about \$60 a share as against \$72.94.

The Canadian Ford plant has resumed operations at Ford City, Ont., on a four-day-a-week schedule and eight hours a day and employing 4000 men.

25 Automobile Exhibitors at California State Fair

SACRAMENTO, Cal., Sept. 15.—The annual automobile show in connection with the California State Fair opened here with 25 exhibitors showing more than 100 passenger automobiles and about a dozen trucks. The show is the largest in the history of the fair and attracted a number of exhibitors from San Francisco and other places.

General Motors Dealer Stocks Reduced Further in August

Last Month Proved Slower With Corporation's Divisions Than July, However, Report Shows

NEW YORK, Sept. 15.—In comparison with July, August was a slower month with General Motors divisions, but as a result of dealer operations stocks of the retailers were still more reduced. This is shown by the monthly report issued by the corporation which shows that in August deliveries by dealers to ultimate consumers totaled 54,149 cars and trucks, compared with 55,832 in the same month a year ago; and further with 60,275 in July this year.

Sales to Dealers

On the other hand, sales by the different divisions to their dealers totaled 48,450, as against 40,563 in July, thus demonstrating that production and retail sales are getting closer together than in the preceding months.

In the eight months of operations retail deliveries have totaled 494,014, as against 442,112 sales to dealers. Comparing the same periods this year and last shows that there has been a decrease of 6.6 per cent in the eight months of this year as against the same time last year.

Comparative Figures

The report for the first eight months of 1924 and for corresponding periods in 1923 and 1922 follows:

1924			
	Sales to Dealers	Retail Sales	
January	61,398	33,295	
February	78,668	50,008	
March	75,484	55,845	
April	58,600	89,610	
May	45,965	84,686	
June	32,934	66,146	
July	40,563	60,275	
August	48,450	54,149	
Total	442,112	494,014	
1923			
	Sales to Dealers	Retail Sales	
January	48,162	30,464	
February	55,427	41,448	
March	71,669	74,137	
April	75,822	97,667	
May	75,393	89,317	
June	60,708	75,962	
July	51,634	63,209	
August	65,999	55,832	
Total	514,814	528,026	
1922			
	Sales to Dealers	Retail Sales	
January	16,038	11,520	
February	20,869	14,795	
March	34,082	26,615	
April	40,474	48,353	
May	46,736	51,983	
June	48,541	47,058	
July	33,372	32,000	
August	42,840	43,452	
Total	283,402	278,776	

La Fayette Equipment to Be Used in Production of Ajax

Plans Go Steadily Ahead for Nash Subsidiary's Output of Light, Popular-Priced Cars

CHICAGO, Sept. 15.—Machinery and equipment at the factory of the La Fayette Motors Corporation and La Fayette car parts have been purchased by the Ajax Motors Company of Racine, a subsidiary of Nash Motors. Acceptance of the Ajax proposition for the purchase was made by the board of directors of the La Fayette company following ratification of the plan by the La Fayette stockholders.

The Ajax company, it is understood, will utilize the machinery equipment in the manufacture of its proposed new line of cars, while this purchase of La Fayette parts is said to be in line with a program under which service of La Fayette cars in owners hands will be assured.

The La Fayette plant which adjoins the Milwaukee factory of the Nash Motors company has always belonged to Nash Motors and was leased by it to the La Fayette Motors corporation.

Plans are going steadily ahead for the production of cars by the Ajax organization but Nash officials are reluctant to give out more than meager details. It is known, however, that the product of the Ajax plant will be a light, popular priced car to be called "Ajax" and that the engineers and Nash officials have substantially approved the design that is to be marketed. Just when the Ajax will appear is also an unpublished item but it is learned that plans are to exhibit it at the New York and Chicago shows and that actual merchandising of the unit will likely be under way by early spring. Meanwhile work goes ahead at the Ajax plant, formerly the Mitchell plant, in Racine, upon preparations for production. With the purchase of the La Fayette machinery and equipment a settled fact removal to Racine and installation in the old Mitchell plant is the next logical step to be taken.

There is considerable speculation now as to what the La Fayette purchasers will do with the Milwaukee plant and in this connection it is said to be possible that the old La Fayette factory will be utilized by Nash in speeding up and expanding its Milwaukee production. As Nash already owns the factory and as it also owns the Ajax company such a move would require merely a decision and necessary formalities. C. W. Nash, himself, head of the Nash company and also head of the Ajax, is said to be taking deep personal interest in the proposed Ajax car. It is said that the new unit will embody a number of his own ideas and be constructed in keeping with Nash conceptions of thoroughness and efficiency.

Philadelphia Opens Municipal Garage

PHILADELPHIA, Sept. 15.—This city's first municipal garage has been formally opened, in the old market house at Twenty-first and Market streets. The new department, known as the Bureau of Automobiles, now has supervision over all city-owned cars.

The garage is equipped with a machine shop, paint, repair and radiator shops and there is a special department for washing cars, with ample storage facilities.

The garage is within five minutes' call of city hall. A feature of the system will be the requisitioning of all cars, just as if they were supplies.

GUARANTEED USED CAR POLICY ADOPTED BY CANADIAN FORD DEALERS

(Continued from page 19)

the re-sale price that the car represents to the person who will ultimately purchase it—which is the unused mileage in the car and not what the dealer was forced to allow for it in competition."

Under the heading "The Ford Dealer Re-conditions the Trade-in Car," the company says:

"The Ford dealer is a permanent institution. He knows that if you buy a used Ford car now you will eventually desire a new Ford car—if the used Ford you purchased proves satisfactory to you. He, therefore, sees that the used Ford car you purchase is in good condition and he is interested in keeping it in such condition. He has the equipment to do it with.

"Add to all these advantages the fact that the Ford Motor Co. of Canada, Ltd., holds every authorized Ford dealer thoroughly responsible for the proper servicing, at all times, of every Ford car—new or used—that he sells.

"Remember the price you pay is the base price established by the Ford Motor Co. of Canada, Ltd., plus the cost of re-conditioning the used car. The parts used are charged at a discount of 25 per cent and not at full list price. This is an advantage you obtain."

By charging the cost of the parts necessary for repair at wholesale, the dealer is allowed to make a slightly higher allowance than if the list price was charged. This is more to the advantage of the trader and does not influence the re-sale price. A nominal loss might be considered here accruing to the dealer, but this is compensated for by the brokerage fee allowed in the transaction.

In setting the plan in operation in Canada, the company is also announcing it to its foreign dealers for use if they desire it or find need for it in meeting generally competitive conditions.

Dissolution of La Fayette Will Follow Ajax Purchase

Racine Organization Pays \$225,000 for Physical Assets of Concern Which Leaves Picture

NEW YORK, Sept. 15.—Action on the part of the stockholders of the La Fayette Motors Corp., at a special meeting held in Baltimore the latter part of last week, has resulted in the sale to the Ajax Motors Co., of Racine, Wis., a Nash subsidiary, of all of the La Fayette assets except cash, receivables, securities, cars in stock and name and good will for \$225,000. The meeting at the same time authorized the directors to dispose of all of the other assets at the best terms obtainable.

This step means the dissolution of the La Fayette company and steps will be taken at once, to wind up its affairs, it is said.

Stockholders ordered the dissolution of the company following a statement issued by the directors to the effect that despite the recent reorganization and the expenditure of \$2,000,000 put into the treasury by the Nash Motors Co., in June, 1922, they could not recommend to the La Fayette stockholders the putting of more money into the company in a further effort to establish the business.

Originally the La Fayette Motors Corp. was the La Fayette Motors Co., with a factory at Mars Hill, Indianapolis, building a high priced car designed by D. McCall White and with C. W. Nash financially interested in the company. In the early part of 1923, following the reorganization into the La Fayette Motors Corp., the plant was removed to Milwaukee, more money was put in and a strong effort made to establish the car among the leaders in its class.

The reorganization was under Maryland laws and the capital stock consisted of 30,000 shares of common on no par value; \$3,000,000 7 per cent cumulative first preferred and \$4,000,000 7 per cent non-cumulative second preferred. The new corporation purchased all of the property and assets of the old company and assumed its debts and liabilities and issued to the old company \$4,000,000 par value second preferred stock, having a book value of \$900,000. The second preferred stock was distributed to the stockholders of the predecessor company as final liquidation dividend.

The last financial statement, issued at the end of 1922, six months after the reorganization, showed that the company only had \$156,746 cash, \$128,057 receivables and inventories of \$1,015,446. Against this were three-year bank notes of \$950,000, accounts payable of \$194,260 and notes payable of \$25,000.

Officers of the company are: J. J. Storrow, chairman of the board; C. W. Nash, president; E. C. Howard, vice president and secretary; D. F. Edwards, vice president and treasurer.

\$100 Reward

This reward is offered by The Class Journal Company for the arrest and conviction of a man who has been giving a receipt, in form as shown herewith, for magazine subscriptions for various publications, including Motor World, Motor Age and many others. The Class Journal Company employs responsible subscription men who have unqualified credentials, which they can prove to your satisfaction. Examine carefully receipts and if in doubt demand credentials.

The Class Journal Company earnestly requests the help of readers in cases of this kind. It is an easy form of petty graft. The amount involved is small. The buyer is told not to complain of non-receipt of the paper for a month or two. By this time the fake salesman is miles away. When complaint is made there is no clue. The company name on the receipt is phoney. There is no

TRADE PERIODICAL CO.

Established 1894

High Class Trade Publications

Home Office, Chicago

Branches in All Principal Cities

Please enter
my order for

Amount

3.90 Paid in full for

Name

Address

P. O.

Date

Proprietor ☐

Manager ☒

Employee ☐

State your connection with the automotive industry:

☐ Jobber

☐ Garage

☐ Vulcanizer

☐ Acces'ry Dealer

☒ Repair Shop

☐ Radiator Rep.

☐ Car Dealer

☐ Service Sta.

☐ Battery Service

This receipt is entirely genuine, will be honored by us, and should have the confidence of the trade.

Allow three weeks before complaining of the non-receipt of the publication.

If you have cause to complain, send us this receipt and we will investigate thoroughly and return it to you after a proper adjustment has been made.

This receipt is void if less than regular subscription rates are paid to representative.

Agent not authorized to collect over ten dollars.

Special Representative

number for the street address. The magazines are generally listed by numbers and not name.

It is hard to catch these men and they can't be caught at all unless complaint is made and prosecution supported by the testimony of the subscriber. It is an old graft. It has been worked for years and seems to get stronger every year. Many times these men are caught but the subscriber relents over pressing what seems to be a petty claim when the crook pleads for mercy.

But the only way to stop the practice is for subscribers to report these cases and assist in their prosecution. This will protect thousands of brother dealers. The Class Journal Company will help in the prosecution if the subscriber will make the complaint and the reward of \$100 will be paid to the person who is responsible for the arrest and conviction of the fake agent.

N. A. C. C. Rejects Co-operative Sales Congresses Proposal

Manufacturers Body Holds Activities Suggested by N. A. D. A. Are Functions of Latter Body

NEW YORK, Sept. 15.—Directors of the National Automobile Chamber of Commerce have decided that they cannot grant the request of the National Automobile Dealers Association for a contribution of \$25,000, to be used by the N. A. D. A. for the promotion of a series of sales congresses in the leading cities of the country.

In asking for the contribution the N. A. D. A. stated it would put in a similar amount, starting the circuit at Atlantic City this month.

In announcing its decision, the chamber made the following statement:

"It developed at the meeting of directors on Sept. 4 that most automobile manufacturers do, and others are planning to, have educational selling plans for their dealers, based on their own sales policies.

"It was felt that any general activities supplementary to that of the individual factories are purely the function of the Dealers' Association and not one to which the funds of the manufacturers' organization should be voted."

N. A. D. A. TO GO AHEAD

ST. LOUIS, Sept. 15.—C. A. Vane, manager of the National Automobile Dealers Association, declares that despite the action of the National Automobile Chamber of Commerce in declining to contribute \$25,000 towards the promotion of the sales congresses, the N. A. D. A. will go ahead with the first six meetings anyway. These will be held at Atlantic City, Boston, Buffalo, Cleveland, Chicago and Milwaukee. If sufficient support is received from the dealers, the whole program will be carried to completion. However, Mr. Vane said it is too early to definitely forecast that.

Jimmy Murphy Meets Death in Syracuse Track Mishap

SYRACUSE, N. Y., Sept. 16.—Jimmy Murphy, winner of many speedway contests and one of the best known figures in the racing fraternity, met death here yesterday as the result of an accident on the State Fair Grounds track. Murphy was on the 138th lap of a 150-mile race when his car crashed through a fence on the inside of a curve. A splinter of the wrecked fence pierced his chest. An ambulance was on the scene promptly and Murphy was taken to a hospital where he died without regaining consciousness. The popular driver's home was in Vernon, Cal., to which place the body was sent for burial.

High Automotive Interest to Feature A. E. R. A. Convention

Bus Will Occupy 25 Per Cent of Show Space, With Accessories Well Represented

NEW YORK, Sept. 15.—Automotive interest will run high in the approaching annual convention of the American Electric Railway Association which will be held on the Million-Dollar Pier at Atlantic City Oct. 6-10. Not only will 25 per cent of the space in the big show which the association will hold at the same time be occupied by motor bus manufacturers, but there will be a get-together on the part of street railway people and the automobile industry because of the increasing popularity of the motor bus in the traction world.

To Emphasize Harmony

The harmony that now exists between the erstwhile rivals, the trolley and bus, will be emphasized most strongly at the meeting of the Coordination Division of the A. E. R. A. scheduled for Thursday, the 9th, when the report of the Committee on Unification and Coordination of All Forms of Local Transportation comes up for consideration. This committee is headed by G. A. Richardson, vice-president and general manager of the Chicago Surface Lines, who has arranged for discussions on the "Coordination of Motor Vehicle and Electric Service by Electric Railways," with A. J. Brosseau, secretary of the National Automobile Chamber of Commerce and manufacturer of Mack trucks and buses, holding the brief for the automobile industry, while a prominent representative of the electric railway interests, not yet named, will speak for his clientele.

This will follow another important automotive-street railway session which will be held Tuesday afternoon under the auspices of the Transportation and Traffic Association, a unit of the A. E. R. A. At this meeting there will be considered a report from a sub-committee on Trackless Vehicle Operation.

Bus Standardization

The Engineering Association, another unit, is expecting to receive a report on bus standardization from a sub-committee representing both the A. E. R. A. and the Society of Automotive Engineers.

The show itself will be held at the same time as the convention, both at the same place and with no one permitted to have exhibits in hotel rooms.

Nearly 200 exhibitors have been booked and 84,424 sq. ft. of space will be occupied in comparison with 75,681 last year. Bus interests will use 23,493 sq. ft. of this space and some 21 bus manufacturers will display their wares.

Displays also will be made by many parts and accessory concerns from the automotive industry.

Half a Second Delay in Brake Action

WASHINGTON, Sept. 13.—The Bureau of Standards finds a delay averaging about half a second to occur between the signal to an automobile driver to apply the brakes, and the actual application of them. During this time a car having a speed of 30 miles per hour would travel a distance of 22 feet.

Some of this delay, the Bureau explains, is accounted for by the reaction time of the driver. This is the time it takes him to get an idea into his head and to act on it. The rest of the time is consumed in the acts of shifting the foot to the brake pedal and in taking up the slack in the braking mechanism.

The tests were made with a recording decelerometer, the signal to stop being automatically recorded on a moving strip of paper on which was also recorded the decelerating effect of the brakes.

A. M. A. Closed Car Show Scheduled for Sept. 27-Oct. 4

NEW YORK, Sept. 15.—The closed car show of the Automobile Merchants Association will be held in the Grand Central Palace, Sept. 27-Oct. 4. The definite announcement of the dates was made and the drawing for space took place at a luncheon at the New York Athletic Club.

Great interest is being displayed in the show and 42 cars will be shown as against only 31 last year. An added attraction is the inclusion of trucks for the first time, eight of the 12 members of the truck division of the association being given space. No accessory exhibits will appear.

This time the association will use 52,000 sq. ft. of space as compared with 44,000 last year.

NEW CLEVELAND DISTRIBUTORS

CLEVELAND, O., Sept. 15.—The Cleveland Automobile Co. announces the following distributors:

Brennan & Tucker Motor Co., Denver, Colo., Cleveland Sales & Service, Danbury, Conn., C. S. Neal, Newport, Ky., Robert Y. Burns, Erie, Pa., The Rookery Garage, Evansville, Ind., Jackson Auto Exchange, Jackson, Mich., Lundell Automobile Co., Houston, Tex., F. M. White Motor Co., Memphis, Tenn., R. K. McIntosh, Spokane, Wash., Lester L. Ulrich, Myerstown, Pa., Lester L. Ulrich, Lebanon, Pa., Clover Panaro Motor Co., Scranton, Pa., Rath & Gildner, Los Angeles, Cal., Threde Automobile Co., Alton, Ill.

OFFERS NEW HEATER

ALLEGAN, Mich., Sept. 15.—Walter A. Kysor, former president and general manager of the Acme Motor Truck Co., of Cadillac, Mich., has organized the Kysor Heater Co., which is manufacturing a heater invented by Mr. Kysor.

New York Dealers Looking Forward to Good Fall Trade

August Yields Fairly Good Business for New Vehicles, With Used Car Sales Quiet

NEW YORK, Sept. 15.—So far as the retail situation is concerned, August was an improvement over July and considerably better than June. This is regarded as a healthy sign because usually June is far better than either of the following months. This increase in business is uniform, too, with several of the slow moving lines reporting a demand that is surprising at this time of the year. Of course with the popular makes business is much brisker.

With the encouragement given by a fairly good August, dealers in the Metropolitan area look forward to a good fall, which will be given added impetus by the annual fall show of closed models which the Automobile Merchants Association will put on in the Grand Central Palace.

Not so much encouragement is received from the used car marts. Here things are quiet. Light cars are moving fairly well, but with what is called the big stuff, the higher priced cars, there is scarcely any activity at all.

One phase of the month's business was the offer of the representative of a popular make in the middle class to take in trade 1923 Fords, allowing the full price paid by the prospect. This is said to have given quite an impetus to this concern's sales, it being possible to move the used cars taken in trade with very little difficulty.

HEADS CLEVELAND AGENCY

ST. LOUIS, Mo., Sept. 13.—E. C. Meissner formerly of St. Louis but lately of Terre Haute, Ind., has become president of the Cleveland Motor-Sales Co., of St. Louis, distributor of the Cleveland Six.

Mr. Meissner is a former president of the Terre Haute Automobile Club of which he is still a director and he is president of the Terre Haute City Board of Public Safety, which office he has resigned effective next month, as he plans to reside in St. Louis. He will retain his Terre Haute tire business.

PLAN LARGE BUILDING

ATLANTA, Ga., Sept. 15.—The Alexander-Seewald Co., one of the largest distributors at wholesale of accessories and replacement parts in the South, has purchased a large site on Hunnicut street in Atlanta, where the construction of a modern daylight plant 100x135 feet as a permanent home for the company is planned. The building will be two stories in height, and one of the largest stocks of accessories and parts in the South will be carried.

Many Second-Hand Machines Sold at Dallas Used Car Show

Event So Satisfactory Dealers Who Took Part Plan Repetition of Feature in Fall

DALLAS, Tex., Sept. 15.—With a view of convincing the public that used automobiles may be bought with the same satisfaction and confidence attendant upon the purchase of a new machine, when such used cars are bought from a reputable dealer, Dallas automobile retailers staged a "used car" show, the first ever held here.

The 13 dealers participating in the "used car show" all declare it was a decided success and that the number of used cars moved during the week of the show and as a result of the concerted display, justified the trouble and expense of staging the show.

The "used car" show, more politely termed "Pick o' Dallas Used Car Display," was staged at the Parkmoor Automobile Hotel. Here, and on one floor, were displayed practically every make of automobile. They were plainly tagged and priced. Each tag bore the dealer's name and the kind of cars he specialized in.

Each automobile concern had one to three representatives on the floor of the display rooms. The representatives explained what had been done in the matter of reconditioning the machines and what the company would do in the matter of standing behind the cars sold. The cars were sold on a basis of service they would give and the dealers propose to see that they give that service.

The show was such a success the dealers said it would be repeated. It is probable another "show" will be held in the fall. The show was preceded by a considerable amount of newspaper advertising.

BIG TRAFFIC INCREASE

NEW YORK, Sept. 13.—Vehicular traffic into and out of Manhattan has increased more than 25 per cent since 1920, according to statistics compiled by the authorities. A count taken on May 28 last at 28 points of entry shows that almost 200,000 vehicles entered or left by way of the ferries and bridges on that day, of which only 8 per cent were horse-drawn.

Figures compiled in 1920 report a total of 154,700 motor vehicles alone using the ferries and bridges daily.

BOYLE VALVE INCORPORATES

CHICAGO, Sept. 15.—The Boyle Valve Company, 5821 S. Ada St., Chicago, was recently incorporated under the laws of Illinois with a capital stock of \$200,000. Officers of the organization are: President and Treasurer, M. J. Boyle, Vice-President, Timothy J. Feld, Secretary and General Manager, W. S. Goodell.

Promoters Plan Air Taxi Service

PHILADELPHIA, Sept. 15.—This city, before September has closed, will have a line of aerial taxicabs which will carry passengers to any part of the United States, according to Harold Pitcairn, millionaire sportsman and aerial navigation enthusiast of Bryn Athyn.

Mr. Pitcairn, who is a pilot and member of the Aero Club of Pennsylvania, recently flew to Dayton, O., to study ways and means of carrying passengers.

He says he and his associates will start service with two Martynside planes, such as are used in the English transchannel service, capable of accommodating a pilot and four passengers. He says the rate will compare favorably with train fare, considering the advantages of speed and comfort.

Automotive Electric Association Convenes in West Virginia

CLEVELAND, Sept. 15.—Automotive Electric Association has completed its program for the summer meeting to be held at White Sulphur Springs, W. Va., Sept. 17-20. The first day will be given over largely to committee meetings. The morning of the second day a general session of all members and guests will be held, which will be addressed by B. L. Shinn, special representative of the National Vigilance Committee of the Advertising Clubs of the World, and C. P. Shattuck, field service representative of the Chilton publications.

Specialized electrical service will be discussed in the evening of the second day. On Friday the 19th A. E. A. members will meet representatives of the lamp manufacturers and there also will be reports by the Standardization Committee of which T. L. Lee is chairman and the Legal and Patent Committee, headed by Victor S. Beam.

The final day there will be a meeting of the Board of Governors and a report of the Service Managers and Advertising committees, with discussions. The meeting will end with an executive session, open only to A. E. A. members.

HIGHWAY ROUTED

STREATOR, Ill., Sept. 13.—Illinois has completed its state organization of the Harding highway and it has been routed from Grant Park, at the Indiana line, through Momence, Kankakee, Dwight, Streator, Lacon, Princeville, Knoxville, Galesburg, Monmouth. Phillip Saunders, Streator, was elected president of the Illinois group; L. H. Allen, Lacon, vice-president; L. P. King, Kankakee, secretary; Jesse Greening, Streator, treasurer. F. N. Vaughn, Ohio, national organizer, aided the organization work.

Cars and Motorcycles Yield \$112,870,536 Taxes in Year

Collections by U. S. on Trucks and Wagons for Last Fiscal Year Period Put at \$11,510,536

WASHINGTON, Sept. 15.—A total of \$112,870,536.57 was collected in excise taxes on automobiles and motorcycles during the fiscal year ending June 30, 1924, it has been made public here by International Revenue Commissioner Blair who announces that the total collections of internal revenue from all sources for this period were \$2,796,179,257.06 in 1924 as compared with \$2,621,745,227.57 in 1923 or an increase of \$174,434,029.49.

Compared with the preceding fiscal year, the total excise taxes collected this year show an increase of \$20,133,956.13 as the total in 1922 and 1923 was only \$92,736,580.44.

The total excise tax collected on automobile trucks and automobile wagons for the fiscal year just ended was \$11,510,563.05 or an increase of \$831,802.00 over the preceding fiscal year while the total on tires, parts, of accessories for automobiles for 1923-24 was \$33,633,609.78 or a loss of \$7,241,539.01 from 1922-23 when the excise tax total was \$40,875,148.79.

Of all industries from which excise taxes are exacted a total of \$200,872,361.73 was derived during the latest fiscal year and of this amount the automobile industry accounted for \$158,014,709.40, an increase over 1922-23 when the automobile industry contributed \$144,290,490.28 out of \$185,064,278.44.

The special taxes from passenger automobiles for hire during 1923-24 is given at \$2,013,839, as compared with \$1,907,399.55 in 1922-23 which was a net gain of \$106,439.45.

DELCO LIGHT DEALERS MEET

DAVENPORT, Ia., Sept. 13.—Forty Delco Light Company dealers within a radius of 100 miles representing the General Motors Corporation in Iowa and Illinois territory, attended a sales conference here. Elmer Melke, sales engineer from the Dayton, O., office, directed the conference.

NO LICENSE FOR DELINQUENTS

BALTIMORE, Md., Sept. 15.—Motor car owners of Baltimore must pay up all taxes due the city on their cars before they can get licences for the vehicles. The last session of the General Assembly passed this law and municipal authorities are determined to enforce it.

DOUBLE CAPACITY PLANNED

HARTFORD, Conn., Sept. 13.—The L. & H. Motor Co., Hartford, Conn., distributor of the Hupmobile in seven counties of the state will shortly begin work on a substantial addition which double the show room and service space.

"Style" First Demand of Car Owner, Velie Quiz Indicates

Cheaper Closed Cars Ranks Second in Questionnaire Which Brings 1,200 Replies From Dealers

MOLINE, Ill., Sept. 15.—A survey in the trend in demand was made by the Velie Motors Corp. when it recently announced its new line, disclosing that the public favors style, cheaper closed cars, four-wheel brakes, balloon tires and mechanical excellence in the order named.

In the week in which this survey was made, it is said that 255,000 persons visited Velie salesrooms in the larger cities, each person being questioned by the salesman, the results being as follows: as announced by the Velie company:

1—Style was the one thing the people were interested in above all else.

2—Cheaper closed cars were next in demand.

3—Mechanical excellence was demanded offhand by 50 per cent of the public.

4—More than 90 per cent demanded either balloon tires or four-wheel brakes, and about 40 per cent wanted both.

In the larger cities, such as New York and Chicago, the company says 90 per cent asked for either balloons or four-wheel brakes and about 40 per cent wanted both.

This survey follows a questionnaire sent out by the company through an anonymous source, to 10,000 dealers on balloons and four-wheel brakes. More than 1200 replied and it is said that the dealers by a ratio of 5 to 1 favored balloons above all other features. Four-wheel brakes were favored 3 to 1. In sections where roads were good 100 per cent favored both, while in hilly sections balloons were favored above brakes. In cities where traffic is heavy four-wheel brakes got the vote by 12 to 1.

Country dealers, 7 to 1, reported that both four-wheel brakes and balloons are necessary to the success of the medium priced car, the Velie company states.

TAKES CHEVROLET CONTRACTS

MARYVILLE, Mo., Sept. 15.—Fred C. Newlon has taken over the contract for the Chevrolet automobiles, trucks and accessories in Maryville and vicinity. The new agency will be known as the Fred C. Newlon Chevrolet Motor Company and Mr. Newlon will be in charge. The Travis Chevrolet Motor Company will continue to have headquarters in Maryville and will be agents for that machine in Nodaway, Atchinson, Holt and Gentry counties. They have local dealers in several of the towns in the four counties.

OPEN BIFLEX STATION

WAUKEGAN, Ill., Sept. 15.—The Biflex Corporation, of Waukegan, has opened a sales branch and service station for Biflex and Halladay bumpers at 5531 Woodward avenue, Detroit. The station is in charge of Fred G. Bemer.

NOVEL FEATURES FOUND IN CHEVROLET'S PURCHASE CERTIFICATE PLAN

(Continued from page 20)

ceeding dealer. This provision appears in the individual certificates and is made the subject of an addendum to the regular Dealers Chevrolet Selling Agreement. The addendum further sets forth that the right to sell certificates under this plan may be withdrawn by the Chevrolet company in the event that the dealer is not functioning in satisfactory manner.

With reference to the banker's attitude toward the plan, the company says:

"Bankers will look upon Chevrolet dealers with more favor in extending lines of credit. This will make it easier for the dealer to meet and carry his quota during the low sales months. Instead of saying, 'We think we will sell 200 cars,' the dealer can say, 'We have sold and are receiving payments on 200 cars. This fund amounting to so many thousands of dollars is on deposit in your bank.' Bankers like definite statements rather than expectations. Think how much better position Chevrolet dealers would be in at the present time had the Chevrolet plan been in operation for two years."

Costs Dealer \$3 a Car

The payment of 6 per cent by the dealer on the money accumulated toward car purchase is analyzed by the company not to represent more than a cost of about \$3 a car or one-half of one per cent of the sales price. The money deposited under the trustee account will draw interest at 3 to 4 per cent, the dealer paying only the difference. The extra interest is an incentive, the company states, to the buyer to save through the dealer rather than the bank. As he regards the transaction at all times as a car purchase rather than as a savings plan, there is less likelihood of his changing his mind. The allowance of 6 per cent on service and on accessory sales is compensated for by directly increased business.

Payments to salesmen under the plan are variable according to the dealers' policies. The company recommends or suggests a payment of \$5 for each certificate sale, this being charged against the salesman's account and deducted when the car is delivered. If the certificate is cancelled the commission is charged against other sales which may be credited to this salesman.

The plan is being put into effect at once. As rapidly as dealers qualify under the insurance provision and as rapidly as the certificates bearing the individual dealer's names can be prepared, they will receive them. The company expects to make the plan general in all parts of the country.

WILL SELL CHEVROLETS

MINNEAPOLIS, Sept. 15.—The St. Anthony Motor Co. has taken possession of a new building at 426 Central Avenue, Minneapolis, to represent the Chevrolet car.

M. and A. M. Convention Plans Rapidly Nearing Completion

Several Interesting Sessions, Each Presided Over by Different Chairman, Billed for Cleveland Event

NEW YORK, Sept. 15.—Plans for the annual convention of the Motor and Accessory Manufacturers Association, to be held in Cleveland Oct. 15-17, are rapidly nearing completion. Chairman E. P. Chalfant and his committee already have a definite program outlined and most of the speakers selected for what is expected to be the best affair of its kind ever promoted by the association.

As already announced, the convention will have sessions devoted to the business outlook, to improved merchandising methods, to foreign trade and to the handling of credits. Each of these sessions will be handled by a different chairman, with G. Brewer Griffin, president of the association, presiding at the opening session, when the subject will be, "The Outlook for Better Business."

One of the speakers at this session will be an internationally known financial authority who will talk on the general outlook. This will be followed by a three-part discussion of the automotive outlook by Alfred Reeves, general manager of the National Automobile Chamber of Commerce; W. O. Rutherford, president of the Rubber Association of America and a M. and A. M. A. director, and President Griffin.

Better Merchandising

E. P. Chalfant, chairman of the board of the Gill Manufacturing Co., will preside at the second day's session, which will be devoted to "Better Merchandising as the Foundation of Better Business." This session will continue morning and afternoon, with speakers on selling through the jobber, distributor and other channels and with a talk on tie-up of manufacturers' and wholesalers' advertising activities. One of the speakers will be J. H. Mehan, manager of the Research Club, an organization of non-competing jobbers, who will talk on "The Jobber's Place in the Automotive Selling System."

On the evening of the second day F. E. Titus, second vice-president of the B. F. Goodrich Co., will preside over a discussion on "The Foreign Trade Opportunity; How to Take Advantage of It." Speakers will talk on the foreign trade outlook and on selling the foreign trade through an export department and through an export sales agent.

The third day will be given over to credit work, with a manufacturers' and foreign trade credit session, the morning presided over by M. A. Moynihan, secretary and treasurer of the Gemmer Manufacturing Co., and a session on jobbers' credits in the afternoon, with R. S. Harvey, vice-president of the Reese Manufacturing Co., as chairman.

Two Shows a Year Planned for San Francisco Bay Cities

One Big Co-Operative Event to Be Held in October and Another in Winter

SAN FRANCISCO, Cal., Sept. 15.—Dealers in automotive vehicles in all the cities around San Francisco Bay will have the opportunity to exhibit their cars, trucks and tractors in two shows a year hereafter, for the motor car dealers' associations of San Francisco and Oakland have united on the plan to hold two shows each year, the fall exposition to be held in the Oakland Civic Auditorium, on the mainland side of the bay, and the winter show to be staged in the San Francisco Auditorium.

This agreement was reached by the action of the Oakland dealers in changing the date of their show from winter to fall, so as not to come into competition with the San Francisco dealers. As a result both cities are working together on plans. The Pacific Coast Auto Show, otherwise the seventh annual show to be held in Oakland, is scheduled for October 4 to 11, with Robert W. Martland, veteran manager of Oakland shows, in charge. The attendance at this show last January was above 25,000, and it is believed that this fall, with the competition of the San Francisco show removed, it will be more than 30,000.

The San Francisco show will be held later in the winter with the co-operation of the Oakland dealers, just as the San Francisco dealers are co-operating to make the Oakland show a success. Virtually all the 1925 lines have announced their new models, or will have them on the coast by October 4, so that the Oakland show should be a representative presentation of the newest designs in passenger cars. The co-operation of the dealers in both cities, and their inter-agreement to exhibit in each others' shows, insures larger displays for both exhibitions, and correspondingly greater opportunity for the dealers of each city.

DISTRIBUTORS IN FLORIDA

ATLANTA, Ga., Sept. 15.—Formation of the Overland Sales Co. at Winter Haven, Fla., to distribute the Overland and Willys-Knight line in that district, has been recently announced by Willys-Overland, Inc., the Atlanta factory branch. The new firm has a \$20,000 capital, with E. C. Linger as president.

EMPLOYEES GIVEN OUTING

BIRMINGHAM, Ala., Sept. 15.—McCormack Brothers Motor Company recently entertained their employes with the annual picnic and barbecue. There was a baseball game between the service force and the sales department. The service boys won by a score of 12 to 7.

Need 300 Feet to Pass Car Ahead

SAN FRANCISCO, Cal., Sept. 15.—California motorists must have at least 300 feet of clear road before they start to pass another motorist going in the same direction, according to a decision recently handed down by Judge J. B. Cox, of Santa Ana.

Strictly speaking, according to Judge Cox, the California law requires that a motorist making such passage of another car must have 300 feet clearance at all times, but the judge branded this stipulation as foolish, and held it to be a serious hindrance to the free movement of traffic.

Therefore, California motorists now may pass another car going in the same direction so long as they have 300 feet leeway at the time they start to pass the car ahead.

Overland and Willys-Knight Dealers Meet in Birmingham

BIRMINGHAM, Ala., Sept. 15.—Overland and Willys Knight dealers from all parts of Alabama met at the Tutwiler Hotel recently for their annual meeting.

Charles LaReiux, southern sales manager with headquarters in Atlanta, presided over the meeting, assisted by G. Z. McIntire who travels North Alabama for this popular company.

Luncheon was served at 12:30, followed by the business meeting in the afternoon. There were many interesting reports and plans were outlined for the next year.

TO ERECT ASSEMBLY PLANT

LOUISVILLE, Ky., Sept. 15.—The Moll Company has begun wrecking eight frame buildings at Clay and Gray Streets to clear a site for a new \$50,000 assembling plant for the White Motor Company of Cleveland, Ohio. Thirty-five men will be employed at the new plant when it is put into operation as a branch for the southern district and the force will be increased later, it is said. The building will be of steel and brick construction, 105x150 feet in size, and one story high.

NEW BUILDING PLANNED

AKRON, O., Sept. 15.—The India Tire and Rubber Co. will start at once on a new 60x160 foot building which will increase the daily capacity of the plant from 900 to 1,500 tires. The building will be completed and machinery installed before the end of the year according to present plans. The factory has been behind order for several months and at the present time has more than two months' business on its books.

Hartford Dealers Discontinue Green Seal Used Car Plan

Clearing House Fails to Register With Public and Scheme Is Brought to End

HARTFORD, Conn., Sept. 15.—The Green Seal Used Car selling plan adopted by ten Hartford dealers last February is now completely out of the picture and for some time past each of the ten dealers has been following his own ideas of merchandising his used cars.

The proposition, said to have worked out successfully in other cities, was started off with considerable publicity but the idea did not make much of an impression with the local car buying public.

A clearing house of sorts was established and a well known engineer placed in charge, the idea being that as each dealer had cars in A-1 shape and entitled to bear the green seal, they were to be put through the clearing house and if passed by the inspector he tagged them.

Interest in the proposition soon began to wane, however, more especially as it cost each dealer considerable to hold up his share of the expenses, all of which brought about the end of the proposition. Expenditures by the individual dealers who had previously been successful in merchandising used cars were regarded as prohibitive.

STAGE NOVEL CONTESTS

SALT LAKE CITY, Utah, Sept. 15.—At the Lagoon Resort, near here recently the City Motor Sales Co. of South State Street, gave prizes for The Oldest Ford Car On the Grounds; The Most Dilapidated Ford Car On the Ground; The Fat-test Man Driving a Ford, and a Ladies' Backing Up Race.

DISTRIBUTES CHEVROLET

MARSHFIELD, Wis., Sept. 15.—The Rolls Chevrolet Sales Co., Marshfield, Wis., has been incorporated with \$25,000 capital stock by Amos Rolls, G. E. Galvin and F. G. Lendy, to distribute the Chevrolet in several counties.

TO REPRESENT CHANDLER

CLEVELAND, Sept. 15.—The Chandler Motor Car Co. has appointed the following new dealers.

Holland & Pierce, 834 South Vermont, avenue, Los Angeles, Cal.; D. E. McDanel, Inc., Whittier, Cal.; Max Stock, Ashland, Ky.

WILLYS PARTY IN CANADA

TOLEDO, Sept. 13.—John N. Willys and family and Sir William Letts, head of the British Willys interests, are spending a vacation in the Canadian Rockies traveling in a private car "The Boston."

Resale Plan's Success Highly Gratifying to Jordan Company

System Standardizes Used Car Prices and Assures Buyer Quality Service From Reconditioned Unit

CLEVELAND, O., Sept. 15.—Although it has been in operation but a few months the new national policy adopted by the Jordan Motor Car Company, governing the resale of used Jordan units, has exceeded factory expectations in successful operation, says an announcement issued by the company's sales department. An outstanding feature of the system is that it standardizes Jordan's used car values, thus contributing to a solution of the used car problem confronting dealers and at the same time providing for first class reconditioning of all cars handled for resale by the Jordan retail organization.

Under the Jordan resale system every Jordan car that has seen owner service and is offered for resale must bear what is known as the "Mark of Jordan Service." This is a protected plate registered at Washington and issued to the dealer only after he has complied with the company's national rebuilding regulations. Four fundamental facts that stand out as dominant reasons for adopting the policy are described by the company as follows:

Four Dominant Reasons

"First—The Jordan car has a very high second-hand valuation, and the purchaser of the Jordan which has seen service in the hands of an owner is entitled to receive the same assurance of continued service and the same proof of value as the man who buys a brand new Jordan.

"Second—The present owners of Jordans have a right to know what depreciation they must expect to take on their cars if they keep them in the best possible condition. They also have a right to learn what would be the penalty of abuse in case they do not help maintain high values through careful attention to the care of the car while in their possession.

"Third—The dealer must be encouraged to protect his own good name by putting every Jordan car, whether new or used, in such condition before resale, that it will continue to build up his reputation in the town in which he does business.

"Fourth—We believe the ultimate success of every company in this business will depend, not on the number of new cars which a factory ships at random but the number of owners who find in the new and old cars that quality of service which gives a man dollar for dollar value."

Assurance To Buyer

The company assures the purchaser that the car bearing "The Mark of Jordan Service" has been rebuilt in accordance with a national standard policy. One feature of the system is that resale prices are fixed and advertised nationally by the factory the same as new car prices. Because of the variation in freight charges the country has been divided into six zones, and the standard price for each model in each zone is fixed and maintained at the factory. The plan is recommended as being valuable to the dealer in appraising a Jordan trade-in, putting him in a position to know exactly what his income from the car will be after he has reconditioned it.

Jordan's Official Resale Prices

The prices on rebuilt Jordan models, with original equipment, offered for resale in the company's six zones, are as given below, the list becoming effective Sept. 1, 1924:

Model	Resale Price in Zone 1	Resale Price in Zone 2	Resale Price in Zones 3 and 4	Resale Price in Zone 5	Resale Price in Zone 6
1921 Model M Touring.....	\$ 550	\$ 650	\$ 675	\$ 700	\$ 750
1921 Model M Playboy.....	600	700	725	750	800
1921 Model M Brougham.....	800	900	925	950	1050
1921 Model M Sedan.....	800	900	925	950	1050
1922 Model MX Touring.....	800	900	950	975	1000
1922 Model MX Playboy.....	900	1000	1050	1075	1100
1922 Model MX Brougham.....	1150	1250	1300	1350	1450
1922 Model MX Sedan.....	1300	1350	1400	1450	1550
1923 Model MX Touring.....	1100	1200	1225	1250	1300
1923 Model MX Playboy.....	1200	1300	1325	1350	1400
1923 Model MX Brougham.....	1450	1650	1700	1800	1850
(4-Door)					
1923 Model MX Brougham.....	1250	1450	1500	1600	1650
(2-Door)					
1923 Model MX Sedan.....	1650	1700	1750	1850	1900
1923 Model H Sedan.....	1700	1800	1850	1900	2000
1923 Model H Blue Boy.....	1350	1450	1500	1550	1600
1924 Model K Touring.....	1400	1500	1525	1550	1600
1924 Model K Playboy.....	1500	1600	1625	1650	1700
1924 Model K Brougham.....	1700	1900	1950	2050	2100
(4-Door)					
1924 Model K Victoria.....	1800	1900	1950	2000	2100
1924 Model H Sedan.....	1900	2000	2050	2100	2200
1924 Model L Sedan.....	2000	2100	2150	2200	2300
1924 Model L Blueboy.....	1600	1700	1750	1800	1850

ditioned it. By taking the company's official resale price for the model as a basis and computing the estimated sum it will cost to put the car into proper shape the dealer knows just what he can afford to allow on the car taken in. Before the car can be resold, however, it must be rebuilt in accordance with factory regulations.

NAME FLINT DEALERS

FLINT, Mich., Sept. 15.—The Flint Motor Co. has recently added dealers as follows:

Shindler Auto Sales Co., Defiance, O.; H. E. Plumer, Swanton, O.; W. P. Ewing Motor Sales, Findlay, O.; Theobald Motor Sales, Napoleon, O.; J. H. Reinhardt, Monroe, Mich.; L. J. Wannamaker, Ottoville, O.; Bickmann Motor Sales, Fenton, Mich.; P. & M. Garage, Redwood Falls, Minn.; McKean Auto Co., Sioux Falls, So. Dak.; Sandusky Flint Co., Sandusky, O.; Cauley & Satterlee, Hand Station, Mich.; Perry Griggs, St. Clair St., Romeo, Mich.; W. J. Buron, Bridgewater, Mass.; Falmouth Flint Co., Falmouth, Mass.; J. L. Provost Co., Malden, Mass.; E. C. Gross, R. F. D. No. 5, Belfast, Me.; I. C. Trask, Milford, Mass.; Mason Motor Sales Co., San Leandro, Cal.; Carrick Tire Service, Carrick, Pa.; Hoboken Flint Co., 1309 Park Ave., Hoboken, N. J.

REO PAYS EXTRA DIVIDEND

NEW YORK, Sept. 13.—The Reo Motor Co. has announced an extra dividend of 3½ per cent in addition to the regular quarterly payment of 1½ per cent. Both dividends are payable Oct. 1 to stockholders of record Sept. 15.

Maxwell and Chrysler In Strong Financial Position

DETROIT, Sept. 13.—Reporting on the financial position of the Maxwell Motor Corp., President Walter P. Chrysler announces that his official figures as of July 31 show the Chrysler and Maxwell companies in a strong position. Cash on hand was \$3,521,798 as against \$2,705,000 in January.

Inventories, which in January amounted to \$12,610,000, had been reduced, up to July 31, to \$10,486,000. Sight drafts drawn on customers against shipments were \$1,595,000 in January and \$2,716,000 in July. Net working capital of the company, which in January amounted to \$7,678,000, had increased by July 31 to \$12,978,352. The company had no bank loans, while its material commitments were approximately the lowest in its history, representing only about five weeks' requirements at present rate of operations.

Earnings of the Maxwell Motor Corp. and its subsidiaries in July totaled \$609,869, after depreciation and interest. This is at an annual rate of more than \$7 a share on the 611,475 shares of Class B stock outstanding, after depreciation, interest, taxes and allowances for full 8 per cent dividends on the Class A stock. Estimated earnings for August are \$500,000.

Chandler Motor Car Company Announces 2 Improved Models

Chummy Sedan and Metropolitan Appear in New Body Designs and With Extra Equipments

CLEVELAND, Sept. 15.—The Chummy Sedan, priced at \$2,045, and the Metropolitan Sedan de Luxe, at \$2,195, have been announced as improved models by the Chandler Motor Car Co. Both are equipped with a new type one-piece windshield, which is so arranged that it can be raised and lowered vertically by means of a regulation window crank.

The new bodies are lower and have a double belt of molding, the lower bead running the full length of the car. Rounded rear quarters and new type of leather-covered visor add to the appearance of the cars.

Window mouldings are of circassian walnut, with the instrument board and full-width ventilator panelled to match. Interior hardware has a combination of dull and bright silver finish; carpet and seats are gray.

The windshield crank is mounted over the windshield in front of the driver and a half turn raises the glass one inch. When the glass is thus raised the air does not flow directly into the car but passes below the lower edge of the glass into a ventilator that extends the full width of the body, passing down between the instrument board and the dash, and setting up a circulation throughout the car. When the glass is raised more, it clears the edge of the ventilator and admits air directly into the car.

Standard equipment includes balloon tires, nicked radiator shell, motometer, bumper, automatic windshield wiper regulated from the instrument board, and leather covered visor. Colors are black and Luxor blue.

Bus Extension in St. Louis Will Add 75 New Coaches

NEW YORK, Sept. 15.—A reorganization of the board of directors of the Fifth Avenue Coach Co. has taken place whereby, as was expected, John A. Ritchie, president of the Omnibus Corp. of America, has become chairman of the board of the Fifth Avenue company. Frederick T. Wood continues as president and will operate the company. Colonel Grayson M-P. Murphy, in the reorganization retired as chairman of the board, and Mr. Hertz and Mr. Noyes replaced H. H. Vreeland and E. J. Berwin on the board.

Following this meeting the Omnibus corporation announced the extension of the People's Motor Bus Corp. of St. Louis, with 12 new routes covering 43 additional miles. This means, it was stated, the purchase of 75 new motor coaches at a cost of about \$1,000,000. The increased service will start at once.

Fast Worker Sells 'Em at Tracks

BELLFONTE, Pa., Sept. 15.—Willis E. Wion, Nash dealer in Bellfonte, Pa., is thinking of renting a freight car to use as a salesroom.

While unloading his first shipment of three new Nash models of the Advanced Six and Special Six series a crowd gathered, seeking their first view of the new cars.

Before Mr. Wion had unloaded the cars from the train, two of them had been sold, and the third one was sold on the way back to the showroom.

Marmon August Shipments Gained Over Month in 1923

INDIANAPOLIS, Sept. 15.—E. S. Gorrell, vice president of Nordyke & Marmon Company, announced that its August shipments exceeded those of August, 1923, by 13 per cent. This follows a gain of 54 per cent for July against the same period of last year. "Aggressiveness on the part of the Marmon sales organization as well as a more optimistic outlook generally and improved business conditions were accountable for the increase, said Mr. Gorrell, who predicts that Marmon shipments will increase during the remainder of the year due to better business conditions generally.

EQUIPMENTS SELL BETTER

PHILADELPHIA, Sept. 15.—Sales of automotive equipments are averaging 5 per cent better than they were a year ago this time in Philadelphia and its suburbs.

Many A. E. A. Makers of Accessories and Supplies to Cash In on Xmas Gift Idea

Forty Out of 43 Manufacturers Who Reply to Questionnaire Say They
Will Prepare Special Offering for Holiday Trade

CHICAGO, Sept. 11.—A very active campaign by manufacturers of automotive accessories and supplies to sell their products for Christmas gifts is indicated by the response to a questionnaire sent out by the merchandising department of the Automotive Equipment Association. Out of 43 manufacturing members of the A. E. A. who have replied to the questionnaire, 40 have stated that they will this year prepare special Christmas boxes or packages of one or more items of their merchandise for the holiday trade. Twenty-nine of these state that they will also use other means to help dealers get the Christmas business.

The merchandising department of the A. E. A., as previously announced, is preparing for a very active campaign

Ford Company Notes Decided Improvement in Business Tone

Material Brace Reflected in August Sales — Expect September to Break Months Best Records

DETROIT, Sept. 15.—Ford Motor Co. reports business conditions of the country showing a decided improvement, this being reflected by August sales reports. In the last ten days of the month sales exceeded the preceding ten days by more than 900 cars a day. As result of this increased business the company has been receiving requests for additional cars from almost all sections of the country, it reports.

Receipt of wires for increased shipments establishes the practical clearing away of dealer stocks. The company has been operating at reduced pace for several months to permit not only of clearing up new cars but used, and now that dealers are wiring for shipments, indications are that the market is ready for cars in large number.

Operations are increased going into September, and the company declares there is good reason to expect that September sales will be the largest in its history. As the company was operating at a rate of approximately 175,000 in September last year, this would mean important production increases over the past several months.

NEW ADVERTISING MANAGER

NEW BRITAIN, Conn., Sept. 15.—Stanley Cooper has succeeded Phillips N. Case as advertising manager of the Fafnir Bearing Co., of New Britain, Conn.

this year, based on its slogan, "Give something for the car this Christmas." The purpose of the questionnaire was to find out as early as possible how many of the association's manufacturing members intend to cooperate positively in this effort. The results thus far are considered highly encouraging by Arthur R. Mogge, merchandising director, and by members of the Merchandising Committee.

Twenty-eight of the manufacturers stated positively that they intend to keep dealers and jobbers informed of their plans through trade paper advertising and otherwise. Many of them also expect to carry advertising in consumer publications.

With the Associations

A. E. A. Film Gets Results

KANSAS CITY, Mo., Sept. 15.—Two associations of garagemen and accessory dealers have been formed in sections near Kansas City, as a result of the showing of the Maintenance film of the Automotive Equipment Association by the Kansas City Automobile Supply Co. This company arranged a meeting at Clinton, Mo., when it was host at dinner to 40 dealers, the picture being shown. John Smith, garageman at Clinton, who handled arrangements for the dinner, was elected president of an association that was formed on the spot; and he appointed a committee to arrange for the next session.

The Kansas City Automobile Supply Co., encouraged by this fine result, arranged later for the showing of the picture, and a dinner, at Excelsior Springs, Clay County. Fifty garagemen, tire and accessory dealers, and car dealers who do large service and accessory business, were present. Byron C. Hedges, Ford dealer at Excelsior Springs, who had made local arrange-

ments, acted as chairman of the meeting.

Those present were heartily in favor of forming an association, to cover two or more counties in this part of Missouri. Mr. Hedges was elected secretary, of a tentative association, and was instructed to appoint a committee to assist in arranging a meeting to be held Sept. 24, at Richmond, when organization will be perfected.

Association in New Home

BALTIMORE, Md., Sept. 15.—The Baltimore Automobile Trade Association, Inc., is now occupying its new quarters at St. Paul and Biddle streets. The association recently took over the property and has had the interior practically rebuilt and redecorated. The new location is an excellent one and affords many more facilities than the old quarters.

Service Managers Band

MILWAUKEE, Wis., Sept. 15.—Under the sponsorship of the Milwaukee Auto-

motive Dealers Association, representatives of the service and repair departments of 36 Milwaukee distributors and dealers have organized the Milwaukee Service Managers Association. Casper H. Sanger, vice-president and treasurer, Sanger Automobile Co., 564-574 Farwell Avenue, was chosen secretary and a second meeting called for Sept. 17 to adopt a constitution and by-laws, elect officers and perfect the organization. Membership will comprise service station managers, superintendents and foremen, and the purpose will be mutual benefit and constructive work along educational lines.

Accessories Branch to Meet

PHILADELPHIA, Sept. 15. — The seventh annual meeting of the Automobile Accessories Branch of the National Hardware Ass'n of the United States will be held at Hotel Shelburne, Atlantic City, Oct. 13-16. This is the same week in which the parent organization will hold its thirtieth annual meeting.

Coming Motor Events

Automobile Shows

- Birmingham, Ala. Dec. 1-6
Dixie Automobile Show, Municipal Auditorium, under the auspices of Birmingham Motor Trade Association, G. P. Caldwell, Secy.
- Chicago Jan. 24-31, 1925
National Automobile Chamber of Commerce.
- Chicago Oct. 11-18
Second Annual Closed Car Show, Coliseum, under the auspices of the Chicago Automobile Trade Association. L. L. Fest in charge.
- Chicago Oct. 21-27
First National Transportation Show in American Exposition Building, promoted by Motor Truck Industries, Inc. William Hallanger, Manager.
- Chicago Jan. 26-31
Twentieth Annual Automobile Salon.
- Clarksburg, W. Va. Oct. 16-18
Clarksburg Automotive Trade Association Closed Car Show, Carmichael Auditorium.
- Dallas, Texas Oct. 11-26
Annual Automobile Show, Fair Grounds, under the auspices of the Dallas Automotive Trades Association.
- Detroit Jan. 17-24, 1925
Detroit Automobile Show, Detroit Dealers' Association.
- El Paso, Texas Sept. 20-27
Automobile Show, Exposition Grounds, under the auspices of the Automobile Department of the International Fair Association. W. J. Wile and E. C. Held, General Chairmen.
- Kansas City, Mo. Feb. 7-14, 1925
Kansas City Motor Car Dealers' Association Show.

- Newark, N. J. Jan. 10-17, 1925
Eighteenth Annual Automobile Show under the auspices of the New Jersey Automobile Exhibition Co., Chamber of Commerce Building. Claude E. Holgate, Manager.
- New York Nov. 9-15
Twentieth Annual Automobile Salon, Hotel Commodore.
- New York Jan. 3-10, 1925
National Automobile Chamber of Commerce.
- Philadelphia Jan. 10-17, 1925
Twenty-fourth Annual Automobile Show, Philadelphia Automobile Trade Association, Commercial Museum.
- Pittsburgh, Pa. Jan. 31-Feb. 7, 1925
Twenty-ninth Annual Automobile Show, Motor Square Garden, under the auspices of the Automotive Association, Jno. J. Bell, Manager.

Foreign Shows

- Berlin Sept. 26-Oct. 5
- Paris, France Oct. 2-12
Passenger Car and Accessory Show.
- London, England Oct. 16-25

Conventions

- Akron, Ohio Nov. 18-20
Annual Convention of the National Tire Dealers Association.
- Atlantic City Oct. 14-17
Thirteenth Annual Convention National Hardware Association of the United States, Marlborough-Blenheim Hotel.
- Chicago Nov. 10-15, inclusive
A. E. A. Convention, Coliseum.

- Chicago Nov. 10-15
Annual convention and show, Automotive Equipment Association.
- Chicago Jan. 26-29, 1925
Eighth Annual Convention, N. A. D. A., Hotel LaSalle.
- Cleveland, O. Oct. 15-17
Fall convention Motor and Accessory Manufacturers' Association.
- Cleveland Nov. 18-19
Joint Service Meeting of the Society of Automotive Engineers and the National Automobile Chamber of Commerce.
- Columbus, O. Dec. 10-11
Ohio Automotive Trade Association's annual convention.
- Detroit Oct. 22-24
S. A. E. Production Meeting and Exhibition.
- Detroit January
Annual Meeting of the Society of Automotive Engineers.
- New York City Jan. 7, 1925
New York Show, Convention N. A. D. A., Hotel Commodore.
- White Sulphur Springs, W. Va., Sept. 17-20
Annual Meeting of the Automotive Electric Association, Greenbrier Hotel.
- Wilkes-Barre, Pa. Oct. 17-18
Fourth Annual Convention of the Pennsylvania Automotive Association, Hotel Stirling.

Races

- Fresno, Cal. Oct. 4
Fresno Speedway Association—150 miles.
- Kansas City, Mo. Oct. 19
Kansas City Speedway Association—250 miles.
- Los Angeles, Cal. Nov. 29
Los Angeles Speedway Association—250 miles.

SQUEEKS & RATTLES

Sisters in Sorrow

WIDOW No. 1—"My husband had many fine positions. Just before he died he was a floorwalker."

Widow No. 2—"This is a coincidence. Mine was a jaywalker."

Washington's interesting statistics about jaywalking was received by the undertakers as an encouraging piece of market news.

You see, jaywalkers, proceed upon the theory that the road to heaven is a straight and narrow cater-cornered shoot.

But if you must jaywalk, leave your packages behind. Your chances will be better, and besides, you might need one free hand for holding the lily they give you.

A crossing flagman says he knows a man who sits down on the railroad track to read his morning paper. Recklessness is a bad habit. Next thing you know he'll be jaywalking.

Anybody can be a jaywalker—once.

In Memoriam

A jaywalking stem-winder was Bill,
He crossed streets diagonally 'till
One fine day—just his luck,
Bill was bumped by a truck—
Well, that is all—there wasn't a will.

While Hannah so true and so pious
Was one who crossed streets on the bias;
Alas for poor Hannah,
A peel of banana
Told why she no longer is nigh us.

There was Jake the slantwise, fat crosser,
As careless as you ever saw, sir,
Who, rammed by a flivver,
Rolled clear to the river;
They got Jake's remains with a hawser.

Some folks have contempt for right angles,
Thumb noses at jams, honks and jangles,
They will take their mad sneaks
On the foolish obliques,
Emerging with angelic spangles.

Meal Tickets

Busses are becoming constantly more popular as railroad feeders—and feeders of railroad stockholders.

And whatever else you might say about the bus collector's nifty little coin register—it isn't at all bashful.

Sales Stuff

"I don't know much about these here balloon tires," said the precautious Hiram. "Be they easy to steer?"

"Sure thing," replied the salesman. "Our cars are equipped with genuine dirigible balloons."

"Dust thou art, to dust returneth," must have been spoken of the car behind.

All in Getting Used to It

We feel awfully sorry for the poor fellow who got his whiskers caught in the fan belt, but shucks, we know one old henpecked pioneer who is always getting his caught in the family's whirligig egg beater, and he's going on ninety.

Even the Kids Are Doing It

When I was a boy we used to play Indian and cowboy when we wanted real excitement. But those games seem too tame for the kids of today. Two boys the other day were seen playing with a wagon. At first they couldn't figure out what to do with two boys and only one wagon. Finally one decided the question. "This will be my car," said he. "I'll be drivin' and you be walkin' across the street, and you see if you can get across the street before I can run over you."

X. Y. Z.

Their Troubles Are Oar in Venice

Makers of outboard motors for use on small boats should learn a lesson from the Italians and do as the Venetians, for a decree has recently been issued requiring that all gondolas be motorized within twenty months. Picture what a law like that in the good old U. S. A. would do. All the sheiks and spooners in the park lagoons and all the fishermen in the north woods would have to use gasoline auxiliaries or "tell it to the judge."

—CHLOROFORM.

Prices and Weights of Current Passenger Car Models

Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price
AMERICAN "D-66"					CHALMERS Y					DORT "27"					H C S "4"				
2985	2-p		Roadster	\$1,950	2865	2-p		Roadster	\$1,185	2595	5-p		Touring	\$1,095	3360	4-p		Touring	\$2,250
3175	4-p		Sp. Roadster	2,050	2950	5-p		Touring	1,185	2780	5-p		Sp. Touring	1,245	3750	4-p		Touring	\$2,650
3260	5-p		Touring	1,695	3095	7-p		Touring	1,295	3010	5-p		Bres. Coupe	1,385	3950	4-p		Coupe	3,350
3300	5-p		Sport	1,850	3095	5-p		Sp. Touring	1,335	3030	5-p		Coupe	1,535	4010	4-p		Sedan	3,350
3310	7-p		Touring	1,760	3245	5-p		Coach	1,535	3045	5-p		Sedan	1,595	HAYNES "60"				
3190	4-p		Sp. Touring	1,885	3620	7-p		Sedan	2,095	3080	5-p		Brougham	1,535	3295	5-p		Touring	\$1,600
3470	7-p		Sedan	2,550	CHEVROLET "Superior"					DUSENBERG St. "8"					3590	5-p		Sedan	2,300
3310	5-p		Brougham	2,195	1690	2-p		Roadster	\$495	DURANT "A-22"					3560	5-p		Brougham 4 d.	2,200
ANDERSON "41"					1790	5-p		Touring	510	2235	2-p		Roadster	\$1,040	HUDSON "Super Six"				
2650	5-p		Touring	\$1,195	1955	5-p		Phaeton DeLuxe	640	2325	5-p		Touring	890	3300	4-p		Speedster	\$1,400
2675	4-p		Sp. Touring	1,445	2005	4-p		Coupe	725	2345	4-p		Sp. Phaeton	6,500	3425	7-p		Phaeton	1,500
2925	2-p		Coupe	1,425	2005	4-p		Coupe DeLuxe	775	2395	5-p		Coupe	7,500	3450	5-p		Coach	1,500
2725	4-p		Coach	1,495	1880	2-p		Utility Coupe	640	2495	5-p		Sedan	7,800	3585	5-p		Sedan	2,150
2875	5-p		Sedan	\$1,695	2070	5-p		Sedan	795	2405	2-p		Business Coupe	1,035	3675	7-p		Sedan	2,250
2925	5-p		Sp. Sedan	1,895	CHANDLER SS					2605	5-p		Sedan	1,365	HUPMOBILE "R"				
			Brougham 3 d.	1,595	2945	2-p		Roadster	\$1,795	2770	5-p		Coach	1,185	2595	2-p		Roadster	\$1,225
2975	7-p		Touring	1,595	3130	4-p		Roadster	1,785	ELCAR "4-40-41"					2705	5-p		Touring	1,225
3200	7-p		Sedan	1,945	3160	5-p		Touring	1,585	2585	5-p		Demi Sp. Touring	1,095	2760	2-p		Coupe	1,450
APPERSON "6"					3218	7-p		Touring	1,735	2641	5-p		Sportster	1,195	2860	4-p		Coupe	1,595
2965	5-p		Sp. Phaeton	\$1,695	3250	4-p		Royal Dispatch	1,885	2900	5-p		Sedan	1,495	2975	5-p		Sedan	1,800
3400	3-p		Coupe	1,985	3380	5-p		Chummy Sedan	2,045	2981	5-p		Sp. Sedan	1,695	2875	5-p		Club Sedan	1,475
3400	5-p		Sedan	2,095	3600	7-p		Sedan	2,195	2779	5-p		Brougham	1,490	JEWETT				
3450	5-p		Sp. Sedan	2,295	3480	7-p		Limousine	3,095	2829	5-p		Sp. Brough. 3 d.	1,395	2690	5-p		Touring	1,135
"8"					CHRYSLER					FLINT "55"					2810	5-p		DeLuxe Touring	1,290
4100	5-p		Phaeton	\$2,485	2620	4-p		Roadster	\$1,625	3095	5-p		Demi Sp. Tour.	\$1,220	3340	5-p		Touring	2,575
4315	7-p		Phaeton	2,535	2570	5-p		Touring	1,395	3165	4-p		Sp. Touring	1,420	3635	5-p		Brougham	2,875
4250	5-p		Sport Phaeton	2,900	2600	5-p		Phaeton	1,495	3355	4-p		Coupe	2,095	3875	4-p		Victoria	2,775
4440	5-p		Sedan	3,485	2800	5-p		Sedan	1,725	3470	4-p		Sedan	2,185	3525	5-p		Sedan	2,975
4570	5-p		Sport Sedan	3,750	2915	5-p		Imperial Sedan	1,995	FORD "Without Starter and Dem. Rims"					3428	2-p		Sportster	\$1,895
4555	7-p		Sedan	3,585	2855	5-p		Brougham	1,895	1895	2-p		Runabout	\$265	3428	4-p		Foursome	1,595
AUBURN "6-43"					CLEVELAND "43"					ESSEX "8-80"					3528	5-p		Touring	1,595
2550	5-p		Touring	\$1,095	2750	5-p		Touring	1,095	2130	5-p		Touring	\$900	3645	3-p		Coupe	2,200
2672	5-p		Special Touring	1,395	2810	5-p		Touring De Luxe	1,195	2305	5-p		Coach	1,000	3875	5-p		Sedan	2,400
2772	5-p		Sp. Touring	1,465	2830	3-p		Coupe	1,295	2550	5-p		Touring	995	4428	4-p		Torpedo	3,250
2850	5-p		Coupe Touring	1,695	2840	3-p		Spec. Coupe	1,395	2710	4-p		Coupe	2,750	4288	4-p		Coupe	4,300
2852	5-p		English Coach	1,945	2930	5-p		Sedan 2-door	1,395	2730	5-p		Sedan	2,850	4482	5-p		Sedan	4,400
2932	5-p		Sedan	1,795	3040	5-p		Spec. Sedan 4 d.	1,495	2765	5-p		Brougham	2,950	4375	7-p		Imp. Sedan	4,500
"6-63"					COLE MASTER					2765	5-p		Volante Tour.	\$2,325	LAFAYETTE				
3262	5-p		Touring	1,795	3795	7-p		West. Tour.	2,325	2580	5-p		Touring	\$1,950	4118	7-p		Touring	\$3,250
3332	5-p		Sp. Touring	2,035	3675	4-p		Aero-Vol. Tour.	2,475	2710	4-p		Coupe	2,750	4082	4-p		Torpedo	3,250
3562	5-p		Sedan	2,545	4055	5-p		Brouette Sedan	3,225	2730	5-p		Sedan	2,850	4288	4-p		Coupe	4,300
3572	5-p		Brougham	2,345	4000	7-p		Royal Sedan	3,225	2765	5-p		Brougham	2,950	4482	5-p		Sedan	4,400
3572	7-p		Sedan	2,545	4100	7-p		Royal Limousine	3,325	FRANKLIN "10 C"					4375	7-p		Limousine	4,000
BARLEY "6" 6-50					COLUMBIA					2520	5-p		Touring Lim.	2,950	LEXINGTON "Concord"				
2750	5-p		Touring	\$1,395	2480	2-p		Roadster	1,775	3095	5-p		Sp. Roadster	\$1,630	5-p		Touring	\$1,495	
2800	5-p		Sp. Touring	1,495	2485	5-p		Touring	\$1,175	3145	5-p		Touring	1,495	5-p		Touring (Enc.)	1,595	
3100	5-p		Sedan	1,850	2485	5-p		Spec. Touring	1,275	3165	4-p		Sp. Touring	1,795	5-p		Spec. Touring	1,695	
3150	5-p		Sp. Sedan	2,250	2510	2-p		Coupe	1,375	3355	4-p		Coupe	2,095	5-p		Sedan	2,085	
BUICK "Standard"					2725	5-p		Coach	1,575	3470	4-p		Sedan	2,185	"Minute Man"				
2750	2-p		Roadster	\$1,150	2810	5-p		Sedan	1,775	2400	5-p		Touring	1,075	2-p		Roadster	2,045	
2800	2-p		Roadster Encl.	1,190	CUNNINGHAM "V-4"					FORD "With Starter and Dem. Rims"					5-p		Touring	1,995	
2920	5-p		Phaeton	1,175	4600	7-p		Touring	\$6,300	1895	2-p		Runabout	\$265	5-p		Lark Touring	2,230	
2970	5-p		Phaeton Encl.	1,250	4500	4-p		Sp. Touring	5,800	1517	5-p		Touring	295	5-p		Cal. Touring	2,295	
2970	5-p		Phaeton Encl.	1,250	4700	4-p		Coupe	7,150	1540	2-p		Runabout	\$350	5-p		Touring	2,095	
2970	5-p		Business Coupe	1,375	5000	6-p		Sedan	7,650	1662	5-p		Touring	380	5-p		Cal. Touring	2,395	
3075	4-p		Coupe	1,565	DAGMAR "6-70"					1772	2-p		Coupe	525	5-p		Royal Coach	2,430	
3185	5-p		Dbl. Service Sedan	1,475	3800	4-p		Sp. Touring	\$3,500	1950	5-p		Sedan, Fordor	685	5-p		Brougham	2,885	
3245	5-p		Regular Sedan	1,665	4200	4-p		Sedan	4,500	1898	5-p		Sedan, Tudor	590	5-p		Sedan	3,385	
"Master (120 in. W. B.)"					DANIELS "24-38"					FLINT "55"					4010	7-p		Berline Sedan	3,485
3300	2-p		Roadster	\$1,365	4150	4-p		Touring	\$6,800	3095	5-p		Sp. Roadster	\$1,630	KISSELL "55"				
3455	5-p		Roadster Encl.	1,400	4765	7-p		Touring	6,900	3145	5-p		Touring	1,495	3130	2-p		Speedster	\$2,185
3455	5-p		Phaeton	1,395	4600	4-p		Sedan	7,600	3165	4-p		Sp. Touring	1,795	2980	5-p		Phaeton Std.	1,685
3675	4-p		Coupe	2,125	5200	7-p		Sedan	7,800	3355	4-p		Coupe	2,095	3170	5-p		Phaeton DeLuxe	1,885
3845	5-p		Sedan	2,225	DODGE BROTHERS					2580	5-p		Touring	\$1,950	3190	5-p		Tourster	2,085
(128 in. W. B.)					2650	3-p		M. O'War Road.	\$1,495	2550	5-p		Touring	\$1,950	3530	2-p		Enc. Speedster	2,785
3470	3-p		Sp. Roadster	\$1,750	2915	4-p		Legionaire Tour.	1,495	2555	5-p		Touring	995	3430	4-p		Coupe	2,585
3605	5-p		Sp. Phaeton	1,800	2750	5-p		Phaeton	1,395	2650	5-p		Spec. Touring	1,095	3530	5-p		Brougham	2,685
3645	7-p		Phaeton	1,625	3070	5-p		Sedan	1,895	2710	4-p		Coupe	2,750	3530	5-p		Sedan	2,385
3645	7-p		Phaeton Encl.	1,700	3065	5-p		Berline Sedan	1,995	2730	5-p		Sedan	2,850	3530	5-p		Victoria	2,685
3940	5-p		Coutry Club	2,075	2700	5-p		Brougham	1,595	2765	5-p		Brougham	2,950	4070	7-p		Sedan	3,385
3940	5-p		Brougham Sedan	2,350	DODGE BROTHERS					2520	3-p		Roadster	\$ 945	4010	7-p		Berline Sedan	3,485
4020	7-p		Sedan	2,425	2494	2-p		Roadster	\$865	2545	3-p		Spec. Roadster	1,045	LAFAYETTE				
4020	7-p		Sedan Limousine	2,525	2653	2-p		Spec. Roadster	1,025	2550	3-p		Radio Roadster	1,135	4118	7-p		Touring	\$3,250
4020	7-p		Town Car	2,925	2591	5-p		Touring	895	2555	5-p		Touring	995	4082	4-p		Torpedo	3,250
CADILLAC "V-63"					2755	5-p		Spec. Touring	1,055	2650	5-p		Touring DeLuxe	1,145	4288	4-p		Coupe	4,300
4190	4-p		Roadster	\$3,085	2793	4-p		Coupe	1,375	2750	5-p		Radio Touring	1,145	4482	5-p		Sedan	4,400
4280	7-p		Touring	3,085	2929	4-p		Spec. Coupe	1,535	2680	5-p		Coupe	1,275	4375	7-p		Imp. Sedan	4,500
4200	4-p		Phaeton	3,085	3050	5-p		Sedan B	1,250	2895	5-p		Sedan	1,475	4375	7-p		Limousine	4,000
4270	2-p		Coupe	3,875	3098	5-p		Sedan A	1,385	3070	5-p		Sp. Sedan	1,595	4482	7-p			

Prices and Weights of Current Passenger Car Models

Ship.	Wt.	Pass.	Body Style	Price
LINCOLN				
4050	2-p	Roadster		\$4,000
4290	7-p	Touring		4,000
4215	4-p	Phaeton		4,000
4380	5-p	Coupe		4,600
4375	4-p	Sedan		4,800
4600	5-p	Sedan		4,900
4660	7-p	Sedan		5,100
4720	7-p	Limousine		5,300
LOCOMOBILE				
"48"				
5030	4-p	Sportif Tour.		\$7,400
5330	7-p	Touring		7,400
5600	5-p	Victoria Sedan		9,990
5464	7-p	Brougham		9,990
5640	7-p	Tour. Limousine		9,000
5868	7-p	Encl. Drive Lim.		9,990
5624	7-p	Cabriolet		10,250
McFARLAN				
"6" TV				
4600	2-p	Roadster		\$5,400
4600	4-p	Sport Touring		5,600
4700	7-p	Touring		5,700
4900	4-p	Coupe		5,720
5200	4-p	Tour. Sedan		6,720
5200	7-p	Tour. Sedan		6,810
5200	7-p	Sp. Sedan		6,600
5200	7-p	Sub. Sedan		7,000
5100	7-p	Limousine		6,900
5200	7-p	Town Car		9,000
"Light 6" SV				
3700	3-p	Roadster		\$2,600
3700	5-p	Touring		2,600
3850	4-p	Coupe		3,100
4850	5-p	Sedan		3,100
3900	7-p	Sedan		3,200
MARMON				
"34"				
3470	2-p	Speedster		\$3,295
3650	4-p	Speedster		3,295
3575	4-p	Phaeton		3,095
3690	7-p	Phaeton		3,095
3770	4-p	Coupe		3,585
3970	4-p	Sedan		3,985
4155	7-p	Sedan		3,985
4226	7-p	Suburban		4,285
4100	7-p	Limousine		4,285
4000	7-p	Town Car		4,285
MAXWELL				
2135	2-p	Roadster		\$885
2230	5-p	Touring		895
2410	5-p	Sp. Touring		1,055
2280	2-p	Club Coupe		1,025
2480	5-p	Club Sedan		1,095
2570	5-p	Sedan		1,325
2785	5-p	Trav. Sedan		1,585
MOON				
Series "A"				
2400	4-p	Roadster		\$1,450
2410	5-p	Sp. Touring		1,395
2625	5-p	Sedan 2 d		1,695
2750	5-p	Sedan 4 d		1,795
"6-40"				
2860	5-p	Touring		\$1,595
2920	4-p	Coupe		2,035
2920	5-p	Sedan		2,045
3090	5-p	Petite Sedan		2,245
"6-50"				
2850	5-p	Touring		1,695
3120	5-p	Sedan		2,135
3190	5-p	Sp. Sedan		2,245
"6-58"				
3270	5-p	Sp. Touring		2,095
3590	7-p	Petite Sedan		2,885
NASH				
"Special"				
2960	5-p	Touring		\$1,095
3120	5-p	Sedan		1,295
"Advanced"				
(121 in. W. B.)				
3250	3-p	Roadster		\$1,375
3250	5-p	Touring		1,375
3540	5-p	Sedan		1,695
"Advanced"				
(127 in. W. B.)				
3370	7-p	Touring		\$1,525
3670	7-p	Sedan		2,290
3620	4-p	Coupe		2,190
OAKLAND				
"6-54"				
2420	3-p	Roadster		\$1,095
2510	3-p	Sp. Roadster		1,195
2485	5-p	Touring		1,095
2550	5-p	Sp. Touring		1,195
2620	3-p	Landau Coupe		1,295
2720	4-p	Coupe		1,495
2860	5-p	Sedan		1,545
2885	5-p	Landau Sedan		1,645
Ship.	Wt.	Pass.	Body Style	Price
OLDSMOBILE				
"30"				
2145	2-p	Roadster		\$875
2270	2-p	Sp. Roadster		985
2200	5-p	Touring		875
2360	5-p	Sp. Touring		1,015
2330	2-p	Bus. Coupe		1,045
.....	5-p	Coach		1,065
2460	4-p	Coupe		1,175
2570	5-p	Sedan		1,250
2740	5-p	DeLuxe Sedan		1,350
OVERLAND				
"91" (100 in. wheelbase)				
1769	2-p	Roadster		\$530
1863	5-p	Touring		530
1918	5-p	Touring DeLuxe		595
2177	2-p	Coupe		695
2130	5-p	Sedan		850
2004	5-p	Coupe Sedan		685
PACKARD				
"6" (126 in. W. B.)				
3165	4-p	Roadster		\$2,785
3320	5-p	Touring		2,585
3255	4-p	Sp. Touring		2,750
3400	4-p	Coupe		3,275
3515	5-p	Coupe		3,450
3565	5-p	Sedan		3,375
3610	5-p	Sedan Limousine		3,425
"8" (133 in. W. B.)				
3430	7-p	Touring		\$2,785
3690	7-p	Sedan		3,625
3765	7-p	Sedan Limousine		3,675
"8" (136 in. W. B.)				
3880	4-p	Runabout		3,850
3990	5-p	Touring		3,650
3930	4-p	Sp. Touring		3,800
4125	4-p	Coupe		4,550
4200	5-p	Coupe		4,725
4270	5-p	Sedan		4,650
4275	5-p	Sedan Limousine		4,700
"8" (143 in. W. B.)				
4020	7-p	Touring		\$3,850
4275	7-p	Sedan		4,900
4350	7-p	Sedan Limousine		4,950
PAIGE				
3677	4-p	Phaeton		\$1,895
3742	7-p	Phaeton		1,895
3800	4-p	Phaeton DeLuxe		2,095
4300	7-p	Sub. Limousine		2,895
3900	5-p	Brougham 4 d.		2,175
4285	7-p	Sedan DeLuxe		2,770
PEERLESS				
"6-70"				
3050	2-p	Roadster		\$2,350
3175	5-p	Touring		2,285
.....	7-p	Touring		2,485
3550	5-p	Sedan		2,995
.....	5-p	Coupe		2,950
.....	7-p	Sedan		3,295
"8"-66				
3980	4-p	Tour. Phaeton		\$2,690
4300	5-p	Touring		2,750
4355	7-p	Sedan		3,690
4355	7-p	Sedan		3,840
4430	7-p	Berline		4,090
4130	4-p	Victoria Coupe		3,390
PIERCE-ARROW				
"33"				
4350	2-p	Runabout		\$5,250
4590	5-p	Touring		5,250
4780	3-p	Coupe		6,800
4830	4-p	Sedan		6,900
4960	7-p	Sedan		7,000
4750	4-p	Coupe Sedan		6,900
4730	6-p	Brougham		6,800
4850	7-p	Limousine		7,000
5060	7-p	Enclosed Lim.		7,000
4780	7-p	French Lim.		7,000
4782	6-p	Landaulet		7,000
"80"				
3385	7-p	Phaeton		\$2,895
3440	5-p	Sedan		3,895
3625	7-p	Sedan		3,995
3675	7-p	Enc. Dr. Sedan		4,045
3360	4-p	Coupe		.....
PREMIER				
"6-D"				
3385	7-p	Phaeton		\$2,895
3440	5-p	Sedan		3,895
3625	7-p	Sedan		3,995
3675	7-p	Enc. Dr. Sedan		4,045
3360	4-p	Coupe		.....
REO				
"T-6"				
3172	5-p	Sta. Touring		\$1,395
3182	5-p	Sport Touring		1,595
3325	4-p	Coupe		1,875
3515	5-p	Sedan		1,985
3695	5-p	Brougham 4 d.		2,235
REVERE				
"M"				
3700	2-p	Roadster		\$3,200
3500	4-p	Speedster		3,200
3800	5-p	Touring		3,200
4300	5-p	Sedan		4,000
Ship.	Wt.	Pass.	Body Style	Price
RICKENBACKER				
"C"				
2815	3-p	Sp. Roadster		\$1,645
2880	5-p	Sp. Touring		1,595
3050	4-p	Coupe		2,095
3160	5-p	Sedan		2,195
"A"				
3325	4-p	Sport Phaeton		2,195
.....	4-p	Coupe		2,695
.....	5-p	Sedan		2,795
ROAMER				
"6-54-E" (118 in. W. B.)				
3100	2-p	Roadster		\$2,685
3100	4-p	Tourer		2,485
3300	4-p	Sp. Touring		2,750
.....	7-p	Touring		2,685
.....	3-p	Cabriolet		3,285
"6-54-E" (138 in. W. B.)				
4100	5-p	Spec. Sedan		\$4,250
4200	7-p	Suburban-Sedan		3,950
"4-75-E"				
3650	4-p	Sport		3,650
"4-85-E"				
3200	2-p	Spec. Speedster		3,785
ROLLIN				
2300	5-p	Touring		\$995
2315	3-p	Coupe Roadster		1,195
2485	5-p	Sedan		1,295
R & V KNIGHT				
"H"				
3840	4-p	Sp. Roadster		\$2,400
3800	5-p	Touring		2,300
3850	7-p	Touring		2,375
4050	5-p	Coupe		3,000
4160	5-p	Club Sedan		3,050
4165	7-p	Sedan		3,250
ROLLS ROYCE				
Chassis—\$10,895. Prices of complete cars to be obtained from factory, Springfield, Mass.				
STANLEY				
"740"				
3770	5-p	Phaeton		\$2,750
3910	7-p	Phaeton		2,750
4075	5-p	Sedan		3,585
4170	7-p	Sedan		3,985
STAR				
1700	2-p	Roadster		\$540
1790	5-p	Touring		540
1880	5-p	Spec. Touring		640
1980	2-p	Coupe		695
2115	5-p	Sedan		785
2150	5-p	Spec. Sedan		935
STEARNS-KNIGHT				
"4"				
3775	4-p	Coupe Roadster		\$1,795
3775	5-p	Touring		1,595
4250	5-p	Sedan		2,095
3750	4-p	Coupe Brougham		1,895
.....	5-p	Brougham		2,095
"6"				
3775	5-p	Touring		\$2,395
3850	7-p	Touring		2,495
4025	2-p	Coupe		3,395
4275	4-p	Sp. Coupe		3,150
4275	7-p	Sp. Sedan		3,395
3950	5-p	Brougham		3,200
STERLING-KNIGHT				

Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL		Wheelbase (Ins.)	TIRES		Balloon Equipment	Make	ENGINE										Electrical System		Clutch	Gear-set	Universal Joints	REAR AXLE		BRAKES				Steering Gear	Rear Springs		
			Standard Size (Ins.)†				Model	Number of Cylinders, Bore and Stroke (Ins.)	Rated Horsepower, N.A.C.C.	Valve Arrangement	Piston Material	Number of Main Crankshaft Bearings	Oiling System	Carburetor Make	Ignition System Make	Generator and Starter Make	Type and Make	Make				Type and Make	Type and Make	Gear Ratio‡	Foot, Type and Location	Hand, Type and Location	Four Wheel Brake Type			Make	Type and Length
American	D-66	127	33x4½	No	H-Sp	91	6-3½x5	29.40	L	C	3	PS	Str	A-K	G-D	P-B&B	War	M-Har	F-Sal	5.10	E-R	I-R	None	Lav	S-57½						
Anderson	41	115	32x4	Yes*	Cont	7U	6-3½x4¼	23.44	L	C	4	PC	Zen	Wes	Rem	P-B&B	Dur	F-Thi	¾ Sal	4.75	E-R	E-T	Mec*	Gem	S-58						
Anderson	50	122	32x4	Yes*	Cont	8R	6-3½x4¼	27.34	L	C	4	PC	Zen	Rem	Rem	P-B&B	Mec	F-Uhi	¾ Sal	4.62	E-R	E-T	Mec*	Gem	S-58						
Apperson	6	120	32x4	Yes*	Own	6	6-3½x4¼	23.44	L	C	3	PS	Str	Rem	Rem	P-Roc	Mec	M-Thi	½ Col	5.10	E-R	I-R	Mec*	Lav	J-48						
Apperson	8	130	33x5	No	Own	8	8-3½x5	33.80	L	C	4	PS	Str	Rem	Rem	D-Own	Mec	M-Thi	¾ Col	4.25	E-R	I-R	Mec*	Jac	J-48						
Auburn	6-43	114	31x4	Yes*	Cont	7U	6-3½x4¼	23.44	L	C	4	PC	Str	Rem	Rem	P-B&B	W-G	M-Uni	½ Col	4.63	E-R	E-T	Mec*	Jac	S-57						
Auburn	6-63	122	32x4½	Yes*	Weid	Spec	6-3½x5	25.35	L	C	3	PC	Str	Rem	Rem	P-B&B	W-G	M-Thi	½ Col	4.63	E-R	E-T	Mec*	Ros	S-57						
Barley	6-50	118	32x4	No	Cont	7U	6-3½x4¼	23.44	L	C	4	PC	Str	Del	Del	P-B&B	Ful	R-M&E	½ Col	5.11	E-R	I-R	None	Jac	S-56						
Buick	"Standard"	114½	31x4½	Yes	Own	Sta	6-3 x 4½	21.60	L	C	4	PS	Mar	Del	Del	D-Own	Own	M-Own	¾ Own	4.66	E-F	I-R	Mec	Jac	S-55½						
Buick	"Master"	120	32x5½	No	Own	6	6-3½x4¼	27.34	L	C	4	PC	Mar	Del	Del	D-Own	Own	M-Own	¾ Own	4.10	E-F	I-R	Mec	Jac	V-46½						
Cadillac	V-63	132	33x5	Yes*	Own	63	8-3½x5½	31.25	L	C	3	PC	Own	Del	Del	D-Own	Own	M-Spi	F-Own	4.50	B-F	I-R	Mec	Own	N 54						
Case	X	122	32x4½	Yes	Cont	8R	6-3½x4¼	27.34	L	C	4	PC	Sch	Del	Del	D-Own	Own	R-Sne	½ Col	4.90	E-R	I-R	Hyd*	Lav	S-55						
Case	JIC	122	32x4½	Yes	Cont	8R	6-3½x4¼	27.34	L	C	4	PC	Sch	Del	Del	D-Own	Own	R-Sne	½ Col	4.90	E-R	I-R	Hyd*	Lav	S-54½						
Case	Y	132	33x5	No	Own	6T	6-3½x5	33.75	L	C	4	PC	Sch	Del	Del	D-Own	Own	R-Sne	¾ Col	4.45	E-R	I-R	Hyd	Lav	S-57						
Chalmers	Y	117	32x4	No	Own	6	6-3½x4¼	25.35	L	A	3	PS	Str	A-L	A-L	P-Mec	War	M-Mec	½ Tim	5.13	E-R	I-R	None	Gem	S-56						
Chalmers	Y	122	33x4½	No	Own	6	6-3½x4¼	25.35	L	A	3	PS	Str	A-L	A-L	P-Mec	War	M-Mec	½ Tim	5.13	E-R	I-R	Hyd*	Gem	S-56						
Chandler	SS	123	33x6.0	Yes	Own	6	6-3½x5	29.40	L	C	3	PC	Sch	Bos	Bos	P-B&B	Own	M-The	F-Own	4.45	E-R	E-T	Hyd	Own	S-58½						
Chevrolet	Superior	103	30x3½	No	Own		4-3½x4	21.76	L	C	3	PS	Zen	Rem	Rem	K-Own	Own	M-Own	½ Own	3.77	E-R	I-R	None	Own	Q-28						
Chrysler	Six	112½	30x5½	Yes	Own		6-3 x 4½	21.60	L	A	7	FP	Str	Rem	Rem	D-Own	Own	M-Own	½ Own	4.60	E-F	E-T	Hyd	Jax	S-51½						
Cleveland	43	115	31x5.2	Yes	Own	43	6-3½x4¼	23.44	L	C	3	PC	Sch	Bos	Bos	P-B&B	Own	R-Sne	½ Own	4.90	E-R	E-T	Hyd	CAS	S-53						
Cole	Master	127½	20x7.3	Yes*	Nort	311	8-3½x4½	39.20	L	A	3	PC	Sch	Del	Del	D-Nor	Nor	M-Spi	F-Col	4.10	E-R	E-T	None	Gem	S-57						
Columbia		115	31x4	Yes*	Cont	7U	6-3½x4¼	23.44	L	A	4	PC	Str	A-L	A-L	P-B&B	Dur	M-Spi	½ Tim	4.80	E-R	E-T	Hyd*	Own	S-5						
Crawford	6-70	138	33x4½	No	Cont	6T	6-3½x5¼	31.54	L	C	4	PC	Zen	Wes	Wes	D-B-L	B-L	M-Spi	½ Tim	5.00	E-R	I-R	None	Lav	J-62						
Cunningham	V4	132	33x5	No	Own	V4	8-3½x5	45.00	L	C	3	FP	Str	Del	Del	D-Own	Own	R-Sne	F-Tim	4.23	E-R	I-R	None	Gem	J-62						
Dagmar	6-70	138	33x5	No	Cont	6T	6-3½x5¼	31.54	L	C	4	PC	Zen	Wes	Bos	D-B-L	B-L	M-Spi	½ Tim	5.00	E-R	I-R	None	Lav	S-						
Daniels	24-38	138	33x5	Yes*	Own	24-38	8-3½x5¼	39.20	L	C	3	PC	Zen	Del	Del	P-Own	Own	M-Pet	F-Tim	4.23	E-R	I-R	Hyd	Gem	S-52						
Davis	90	115	31x4	Yes*	Cont	7U	6-3½x4¼	23.44	L	C	5	PC	Str	Del	Del	P-B&B	W-G	M-Pet	½ Tim	5.10	E-F	I-R	None	Ros	S-52						
Davis	91	118	32x4½	Yes*	Cont	8R	6-3½x4¼	27.34	L	C	5	PC	Str	Del	Del	P-B&B	W-G	M-Pet	½ Tim	5.10	E-F	I-R	Hyd	Ros	S-52						
Dodge Brothers		116	32x4	Yes*	Own	D	4-3½x4½	24.03	L	A	3	PS	Ste	N-E	N-E	D-Own	Own	M-Own	½ Tim	5.00	E-R	I-R	None	Own	S-55						
Dorris		132	32x5	Yes*	Own	6-80	6-4 x 5	38.40	L	C	7	PC	Str	Bos	Bos	D-Own	B-L	R-Spi	½ Tim	3.10	E-R	I-R	None	Ros	S-60						
Dort	27	115	31x4	Yes*	Fall	T8000	6-3½x4¼	23.41	L	C	3	PC	Car	Bos	Bos	D-Dil	Own	M-The	¾ Fli	4.66	E-R	I-R	None	Gem	V-50						
Duesenberg Straight	8	134	33x5	No	Own	8	8-2½x5	26.45	L	A	3	PC	Str	Del	Del	P-Own	Own	R-Chi	½ Own	4.90	E-F	E-T	Hyd	Lav	S-59						
Dupont	C	124	33x4½	No	H-Sp	90	6-3½x5	29.40	L	C	3	PS	Str	Wes	Wes	D-B-L	B-L	M-Spi	F-Col	4.45	E-R	E-T	Hyd	Own	S-58						
Durant	A-22	109	31x4	Yes*	Cont	Spec	4-3½x4¼	24.03	L	A	3	PC	Til	A-L	A-L	P-Own	War	M-Spi	¾ Ad	4.33	E-R	I-R	Mec*	War	S-50½						
Eicar	6-41	112	31x4	No	Lycio	CF	4-3½x5	21.03	L	A	5	PC	Zen	Del	A-L	P-B&B	W-G	M-Mec	½ Sal	4.70	E-R	I-R	Mec*	Ros	S-51						
Eicar	6-51	113	31x4	No	Cont	7U	6-3½x4¼	23.44	L	C	4	PC	Str	A-L	A-L	P-B&B	W-G	M-Mec	¾ Sal	4.70	E-R	E-T	Mec*	Ros	S-51						
Eicar	6-61	118	32x4	Yes*	Cont	8R	6-3½x4¼	27.34	L	C	4	PC	Str	Del	Del	P-B&B	W-G	M-Har	¾ Sal	4.70	E-R	I-R	Mec*	Ros	S-52						
Eicar	8-80	127	32x6.2	Yes	Lycio	8	8-3½x4¼	31.25	L	C	5	PS	Ste	Bos	Bos	P-B&B	W-G	M-Mec	½ Sal	4.71	E-F	I-R	Hyd	Ros	S-58						
Essex	6	110½	31x5.2	Yes	Own	6	6-2½x4¼	17.32	L	A	3	Sp	Ste	Bos	Bos	D-Own	Own	M-Spi	½ Own	5.60	E-R	I-R	None	Own	S-54½						
Flint	40	115	30x5.2	Yes	Cont	40	6-3½x4¼	23.44	L	C	4	PC	Til	A-L	A-L	P-Own	War	M-Spi	½ Ad	4.77	E-F	E-T	Mec	War	S-50						
Flint	55	120	32x4½	Yes*	Cont	Spec	6-3½x5	27.34	L	C	7	PC	Str	Del	Del	P-Own	War	M-Spi	½ Ad	4.77	E-F	E-T	Mec*	War	S-54						
Ford	T	100	30x3½	No	Own	T	4-3½x4	22.50	L	C	3	Sp	(Own)	Own	Own	D-Own	Own	M-Own	½ Own	3.63	E-T	I-R	None	Own	O-43½						
Franklin	10 C	115	32x4.0	Yes*	Own	10-C	6-3½x4	25.35	L	A	7	PC	Str	A-K	A-K	P-M&E	Own	M-Spi	½ Own	4.73	E-T	E-R	None	Own	E-38						
Gardner	Series 5	112	32x4	Yes*	Lycio	CE	4-3½x5	21.76	L	A	5	PC	Zen	Wes	Wes	P-B&B	Mec	M-Pet	¾ Fli	4.80	I-R	I-R	None	Ros	S-51						
Gray	O	104	30x3½	Yes*	Own	R	4-3½x4	21.03	L	C	3	Sp	Str	Wes	Wes	P-Own	Det	R-Sne	¾ Tim	3.90	I-R	I-R	None	Own	Q-30						
H.C.S.	Series 4	120	32x4½	No	Weid	Spec	4-3½x5½	22.50	L	C	3	PS	Str	Del	Del	D-B-L	B-L	M-Spi	½ Own	4.63	I-R	I-R	None	Gem	S-56						
H.C.S.	Series 6	126	32x5	Yes*	Own	6	6-3½x5	29.40	L	C	3	FP	Str	Del	Del	D-B-L	B-L	M-Spi	¾ Own	4.63	I-R	I-R	None	Gem	S-56						
Hatfield	6-55	121	32x4	No	H-Sp	40	6-3½x5	25.35	L	C	3	PS	Str	Bos	Bos	P-B&B	Dur	M-Spi	¾ Col	4.63	E-R	I-R	None	Gem	S-58						
Haynes	60	121	33x5.7	Yes	Own	60	6-3½x4¾	29.40	L	C	3	PS	Ray	Kin	L-N	D-Own	Mec	M-Thi	½ Own	4.41	E-R	E-T	None	Jac	S-54½						
Hudson	Super 6	127	33x6.2	Yes	Own	6	6-3½x5	29.40	L	A	4	Sp	Ste	Bos	Bos	D-Own	Own	M-Spi	F Tim	4.45	E-R	I-R	None	Gem	S-58						
Hupmobile	Series R	115	32x4	Yes*	Own	R	4-3½x5½	16.90	L	A	3	PC	Str	Bos	Wes	D-Lon	Own	R-Uni	¾ Own												

FINAL DECREE IN HOOVER SUIT

American Chain Company, Inc.,
vs.
Chester N. Weaver Company, Inc.,
Involving Lyon Bumpers

On August 27th there was entered in the United States District Court of San Francisco a final decree for injunction and costs in the suit of the American Chain Company, Inc. vs. Chester N. Weaver Company, Inc., involving Lyon Bumpers.

An appeal from this decree was taken by the Lyon interests who have been defending this suit, and by consent the injunction was suspended pending the determination of this appeal upon the defendant, Chester N. Weaver Company, Inc., giving a bond for \$7,500 and agreeing to file monthly statements of sales of the infringing bumpers.

A preliminary injunction has also been granted by the United States District Court of San Francisco against another distributor of Lyon Bumpers, enjoining the further sale of Lyon Bumpers, which injunction was also suspended by consent of the parties pending the determination of the appeal of the Weaver case, the defendant filing a bond for \$10,000 and agreeing to file a monthly statement of sales.

Several additional suits have been brought under this patent and injunction motions will be made as rapidly as possible. The American Chain Company will continue to start preliminary injunction proceedings in California and elsewhere throughout the country against all infringers of the Hoover Patent who do not now recognize the rights of the American Chain Company thereunder.

In a number of instances, infringers have announced their intention of abiding by the decision of the United States District Court in San Francisco and are ceasing the further manufacture or sale of infringing devices.



AMERICAN CHAIN COMPANY, INC.
BRIDGEPORT, CONNECTICUT

In Canada: DOMINION CHAIN COMPANY, Limited, Niagara Falls, Ontario
District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco
Largest Manufacturers of Welded and Weldless Chains for all Purposes and makers
of the Famous WEED Automobile Accessories



Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL		Wheelbase (Ins.)	TIRES		ENGINE										Electrical System		Clutch	Gear-set	Universal Joints	REAR AXLE		BRAKES			Steering Gear	Rear Springs
			Standard Size (Ins.)	Balloon Equipment	Make	Model	Number of Cylinders, Bore and Stroke (Ins.)	Rated Horsepower, N.A.C.C.	Valve Arrangement	Piston Material	Number of Main Crankshaft Bearings	Oiling System	Carburetor Make	Ignition System Make	Generator and Starter Make	Type and Make				Make	Type and Make	Type and Make	Gear Ratio	Foot, Type and Location			Hand, Type and Location	Four Wheel Brake Type	Make	Type and Length
Paige.....		131	33x4 1/2	Yes*	Cont	Spec	6-3 1/2 x 5	33.75	L	C	4	PC	Ray	A-K	Rem	D-Lon	W-G	M-Mec	1 1/2 Tim	4.90	F-R	I-R	None	Gem	S-61 1/2	
Peerless.....	70	126	33x6 1/2	Yes	Own	70	6-3 1/2 x 5	29.40	L		7	PC	Joh	Del	Del	D-Own	Own	M-Spi	1 1/2 Tim	4.66	E-F	I-R	Hyd	Gem	S-54	
Peerless.....	66	128	33x5	Yes*	Own	66	8-3 1/2 x 5	33.80	L	C	3	PC	Bal	Del	Del	D-Own	Own	M-Spi	3/4 Tim	4.90	E-R	I-R	Hyd*	Gem	S-60	
Pierce-Arrow.....	33	138	33x5	No	Own	33	6-4 x 5 1/2	38.40	T	C	7	FP	Own	Del	Del	D-Own	Own	M-Spi	1 1/2 Tim	4.29	E-R	I-R	Mec*	Own	S-	
Pierce-Arrow.....	"80"	130	32x5 7/8	Yes	Own	"80"	6-3 1/2 x 5	29.40	L	C	7	PC	Owl	Del	Del	P-B&B	B-L	M-Spi	1 1/2 Tim	4.45	I-F	I-R	Mec	Gem	S-56 1/2	
Premier.....	6-D	126 3/4	32x4 1/2	Yes*	Own	6-D	6-3 3/8 x 5 1/2	27.34	I	A	3	PC	Str	Del	Del	P-B&B	Own	M-Blo	3/4 Col	4.70	E-R	I-R	Mec*	Own	S-57 1/2	
R&V Knight.....	11	124	32x4 1/2	No	Own	Kni	6-3 1/2 x 4 1/2	29.40	X	C	4	PC	Str	A-L	A-L	P-B-L	B-L	M-Spi	1 1/2 Tim	5.40	E-R	I-R	None	Jac	S-61	
Reo.....	T6	120	32x6	Yes	Own	T6	6-3 1/2 x 5	24.34	G	A	4	PS	Sch	NE	NE	D-Own	Own	M-Spi	1 1/2 Tim	4.70	E-R	I-R	None	Own	S-54 1/2	
Rever.....		131	32x4 1/2	Yes*	Mons	4	4-4 1/2 x 6	30.63	H	A	2	PS	Str	Bos	Wes	D-B-L	B-L	M-Spi	3/4 Stn	3.44	F-R	I-R	None	Gem	S-58	
Rickenbacker.....	C	121 1/2	32x4 1/2	Yes*	Own	C	4-3 1/2 x 4 1/2	23.44	L	C	3	PC	Str	Bos	Bos	D-Own	W-G	M-Mec	1 1/2 Tim	4.63	I-F	E-T	Mec	Gem	S-57	
Rickenbacker.....	A	117	32x4 1/2	Yes*	Own	A	8-3 x 4 3/4	28.60	L		9	PC	Zen	Bos	Bos	M-Own	W-G	M-Mec	1 1/2 Tim	5.10	I-F	E-T	Mec	Gem	S-59	
Roamer.....	6-54-E	118	32x4 1/2	No	Cont	12XD	6-3 1/2 x 5 1/4	29.40	L	A	3	PS	Str	Spl	Wes	P-B&B	Ful	R-M&E	3/4 Tim	4.60	E-R	I-R	Mec*	Jac	V-53 1/2	
Roamer.....	4-75-F	128	32x4 1/2	No	Dues	G1	4-4 1/2 x 6	28.90	H	A	3	FP	Str	Bos	Wes	D-B-L	B-L	R-M&E	3/4 Tim	4.63	E-R	I-R	Mec*	Jac	V-53 1/2	
Rollin.....	G	112	21x5 1/4	Yes	Own	G	4-3 1/2 x 4 1/2	16.90	L	A	4	PC	Til	Con	Dyn	P-B&B	Mun	R-Sne	1 1/2 Sal	5.10	E-F	E-F	Mec	Dit	O-46 1/2	
Rolls-Royce.....	40-50	143 1/2	33x5	No	Own	40	6-4 1/2 x 4 3/4	48.60	L	A	7	FP	Own	Bos	"O"	K-Own	Own	M-Own	1 1/2 Tim	3.72	I-R	I-R	None	Own	V-54 1/2	
Stanley.....	750	130	33x5 7/8	Yes	Own	750	2-4 x 5	13.00	X	C	2	Non	Non	Bij	Non	P-Own	Non	Non	1 1/2 Ad	4.50	E-R	I-R	None	War	S-40 1/2	
Star.....	4	102	30x4 9/16	Yes	Cont	Spec	4-3 1/2 x 4 1/2	15.63	L	C	3	PS	Til	A-L	A-L	P-Own	War	M-Spi	3/4 Ad	4.87	E-R	I-R	Mec*	War	S-40 1/2	
Stearns-Knight.....	SKL4	119	33x4 1/2	No	Own	Kni	4-3 1/2 x 5 1/2	22.50	X	C	4	PC	Sch	A-K	A-L	D-Own	Own	R-Cl	1 1/2 Tim	4.50	E-R	I-R	Hyd*	Own	V-50	
Stearns-Knight.....	6	130	33x5	No	Own	Kni	6-3 1/2 x 5	25.35	X	C	4	PC	Sch	A-K	A-L	D-Own	Own	R-Cl	1 1/2 Tim	4.70	E-R	I-R	Hyd*	Own	V-50	
Sterling-Knight.....		125	32x4 1/2	Yes*	Own	Kni	6-3 1/2 x 4 1/2	25.35	X	C	7	FP	Str	Wes	Wes	D-Ful	Ful	R-Cl	1 1/2 Tim	4.66	E-R	I-R	Mec*	Ros	S-58	
Stevens Duryea.....	G	138	33x5	No	Own	G	6-4 1/2 x 5 1/2	47.25	L	C	4	PC	Str	Bos	Bos	D-B-L	B-L	M-Spi	1 1/2 Tim	3.76	E-R	I-R	None	Ros	S-57 1/2	
Studebaker.....	Sta. Six	113	31x5 1/2	Yes	Own	EM	6-3 3/8 x 4 1/2	27.34	L	C	4	PC	Str	Wag	Wag	P-Own	Own	R-The	1 1/2 Tim	4.60	E-R	I-R	Hyd*	Own	S-50	
Studebaker.....	Spec. Six	120	32x6 1/2	Yes	Own	EL	6-3 1/2 x 5	29.40	L	C	4	PC	Str	Wag	Wag	P-Own	Own	M-Spi	1 1/2 Tim	4.36	E-R	I-R	Hyd*	Own	S-56	
Studebaker.....	Big Six	127	34x7 3/8	Yes	Own	EK	6-3 1/2 x 5	36.04	L	C	4	PC	Bal	Wag	Wag	P-Own	Own	M-Spi	1 1/2 Tim	3.69	E-R	I-R	Hyd*	Own	S-56	
Stutz.....	693-4	120	32x4 1/2	Yes*	Own	691	6-3 1/2 x 5	29.40	I	C	3	PC	Str	Rem	Rem	P-B&B	W-G	M-Mec	1 1/2 Tim	5.10	E-R	I-R	None	Gem	S-61 1/2	
Stutz.....	KLD11	130	32x4 1/2	No	Own	KLDH	4-4 1/2 x 6	30.63	T	C	3	PC	Str	Del	Del	D-W-G	Own	M-Har	1 1/2 Tim	3.75	I-R	I-R	None	Gem	S-60	
Stutz.....	695	130	32x4 1/2	Yes*	Own	691	6-3 1/2 x 5	29.40	I	C	3	PC	Str	Rem	Rem	P-B&B	W-G	M-Mec	1 1/2 Tim	4.90	E-R	I-R	Hyd*	Gem	S-61 1/2	
Templar.....		122	33x4	No	Own		6-3 3/8 x 5	27.34	L	C	....	PS	T I	Dyn	Dyn	P-M&E	W-G	R-Sne	3/4 Sal	5.10	I-F	E-T	Mec	Ros	S-54
Velie.....	60	118	32x5 1/2	Yes	Own	56	6-3 1/2 x 4 1/4	24.38	I	C	4	FP	Str	Wes	Wes	P-B&B	Dur	M-Thi	1 1/2 Tim	5.10	E-F	I-R	Hyd	Ros	S-55	
Westcott.....	4	125	32x4 1/2	Yes*	Cont	12X	6-3 1/2 x 5 1/4	29.40	L	A	3	PS	Ray	Del	Del	P-B&B	B-L	M-Pet	1 1/2 Tim	4.45	E-R	I-R	Mec*	Gem	S-59	
Westcott.....	44	120	32x4 1/2	Yes*	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	De	De	P-B&B	W-G	M-Pet	1 1/2 Col	4.90	E-R	E-T	Mec*	Gem	S-57 1/2	
Westcott.....	6	118	32x4	Yes*	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	De	De	P-M&E	W-G	M-Pet	1 1/2 Col	4.63	E-R	E-T	Mec*	Gem	S-56	
Wills Ste. Claire.....	A&B6	121	32x4 1/2	Yes*	Own	A68	8-3 1/2 x 4	33.80	I	C	3	FP	Zen	De	De	P-Own	Own	M-Spi	1 1/2 Eat	4.45	E-R	I-R	(None)	Own	S-54 1/2	
Wills Ste. Claire.....	A&B6	127	32x6 0	Yes	Own	B68	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	R-Own	3/4 Tim	4.44	E-F	I-R	Hyd	Own	S-58	
Willys Knight.....	64&6	118	33x4 9/16	Yes	Own	64	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	R-Own	3/4 Tim	5.12	E-R	I-R	None	Own	S-55	
Willys Knight.....	64&6	124	33x5 7/8	Yes	Own	64	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	R-Own	3/4 Tim	5.12	E-R	I-R	None	Own	S-55	
TAXICABS																										
Checker.....		117	33x4 1/2	No	Buda	WTU	4-3 3/4 x 5 1/8	22.50	L	C	3	PC	Zen	Sci	Wes	D-Ful	Ful	Blo	3/4 Col	4.87	E-R	I-R	None	Jon	S-57 1/2	
Driggs.....		108 1/2	30x3 1/2	No	Own		4-2 3/8 x 4 1/2	11.03	L	C		PS	Zen	Bos	Bos	D-Ful	Ful	Spi	3/4 Tim	4.74	E-R	I-R	None	Own	S-	
Elcar.....	4	118	33x4 1/2	No	Lyc	CF	4-3 3/8 x 5	21.03	L	A	5	PC	Car	A-L	A-L	P-B&B	Mun	Pet	3/4 Sal	4.75	E-R	I-R	None	CAS	S-51	
Elcar.....	6	118	33x4 1/2	No	Cont	8R	6-3 3/8 x 4 1/2	27.34	L	C	4	PC	Str	Del	Del	P-B&B	W-G	Spi	3/4 Sal	4.75	E-R	I-R	None	Gem	S-52	
Kelsey.....	E	112	32x4	No	Lyc	CHI	4-3 1/2 x 5	19.60	L	A	5	PC	Zen	Bos	Bos	P-B&B	W-M	M-Spi	3/4 Sal	5.10	E-R	I-R	None	Lav	S-55	
Pennant.....		115	33x4 1/2	No	Buda	WTU	4-3 3/4 x 5 1/8	22.50	L	B	3	PC	Zen	Bos	Wes	D-Ful	Ful	Blo	3/4 Col	4.87	E-R	I-R	None	Jon	S-57	
Premier.....	4A	118	33x4 1/2	No	Buda	WTU	4-3 3/4 x 5 1/8	22.50	L	B	3	PC	Zen	Bos	Bos	D-Ful	Ful	Blo	3/4 Col	4.70	E-R	I-R	None	Ros	S-57 1/2	
Rauch & Lang.....	T	112	32x4	No	Buda	WTU	4-3 3/8 x 5 1/8	22.50	L	B	3	PC	Zen	Bos	Dyn†	P-Det	Det	Spi	1 1/2 Sta	5.10	E-R	E-T	None	Gem	S-50 1/2	
Rauch & Lang.....	102	33x4 1/2	No	Own	Electric										None	None	Own	Own	8.60				None	None	S-	
Reo.....	V	113	33x4 1/2	Yes*	Own	T-6	6-3 1/2 x 5	24.30	G	A	4	PS	Sch	N-E	N-E	D-Own	Own	Own	1 1/2 Tim	4.70	E-R	I-R	None	Own	S-55	
Traveler.....		108 1/2	32x4	No	Buda	WTU	4-3 3/4 x 5 1/8	22.50	L	B	3	PC	Zen	Eis	Eis	B-L	W-M	Spi	Col	.....	E-R	I-R	None	Gem	S-
White.....	15A	119	34x4 1/2	No	Own		4-3 3/8 x 5 1/8	22.50	L	C		Sp	Zen	Opt	Opt	P-Own	Own	Own	1 1/2 Tim	5.12	E-R	I-R	None	Own	J-	
Willys Knight.....	A.B.C.	118	32x4 1/2	Yes*	Own	64	4-3 3/8 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	Own	1 1/2 Tim	5.12	E-R	I-R	None	Own	S-55	
Yellow.....	O-4	109	32x4 1/2	No	Cont	V7	4-3 3/8 x 5	22.50	L	C	3	PC	Zen	Bos	N-E†	D-B-L	B-L	Spi	3/4 Tim	4.90	E-R	E-T	None	Gem	56	
Yellow.....	A-2	109	29x4 1/2	Yes	Cont	V7	4-3 3/8 x 5	22.50	L	C	3	PC	Zen	Bos	N-E†	D-B-L	B-L	Spi	3/4 Tim	4.90	E-R	E-T	None	Gem	56	

TAXICABS

ABBREVIATIONS—

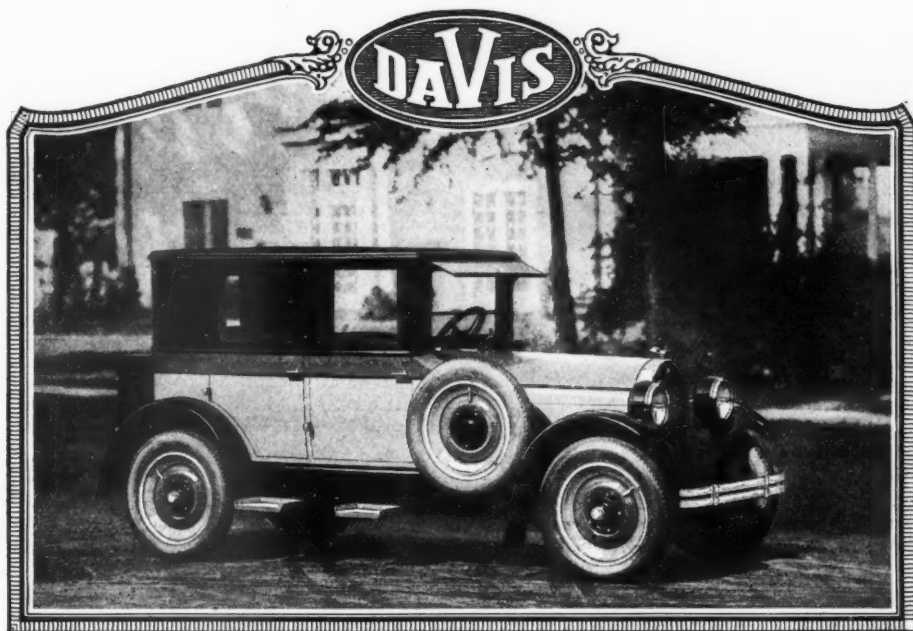
*—Electric
 †—Generator only
 ‡—At extra cost
 †—On Phaeton models
 A—Aluminum
 Anst—Ansted
 Ad—Adams
 A-K—Atwater-Kent
 A-L—Auto-Lite
 B—Semi Steel
 Bul—Ball & Ball
 B & B—Borg & Beck
 B-F—Both Internal and External Four Wheels
 Bil—Bijur
 B-L—Brown-Lipe
 Blo—Blood
 Bos—Bosch
 C—Cast Iron
 Car—Carter
 Chi—Climax
 Col—Columbia
 Con—Connecticut
 Cont—Continental

D—Multiple Disk
 Del—Delco
 Det—Detroit
 De J—De Jon
 Dit—Ditweller
 Doo—Dooley
 Dtl—Detlaff
 Dues—Duesenberg
 Dur—Durstont
 Dyn—Dyneto
 E—Full Elliptic
 E-F—External Four Wheels
 E-R—External Rear Wheels
 E-T—External Transmission
 Eat—Eaton
 F—Full Floating
 Fall—Falls
 Fil—Flint
 FP—Full Pressure to all bearings including wrist pins
 Ful—Fuller
 1/2 F—Semi-Floating
 3/4 F—Three-Quarter Floating
 G—Head and Side
 G-D—Gray & Davis
 Gem—Gemmer

G-L—Grant-Lees
 Goo—Goodrich
 H—Horizontal
 Har—Hart
 Hol—Holley
 Hoo—Hoosier
 H-Sp—Herschell-Spillman
 Hyd—Hydraulic
 I—In Head
 I-F—Internal Four Wheels
 I-R—Internal Rear Wheels
 J—Three-Quarter Elliptic
 Jac—Jacox
 Jax—Jaxon
 Joh—Johnson
 Jon—Jones
 K—Cone
 Kin—Kingston
 L—L Head
 Lav—Lavine
 Lon—Long
 L-N—Leece-Neville
 Lyco—Lycorning
 Mar—Marvel
 M—Metal
 M & E—Merchant & Evans

Mec—Mechanics
 Mons—Monson
 Mun—Muncie
 N—Platform
 Non—None
 N.E.—North East
 Nor—Northway
 O—Special Type
 Opt—Optional
 P—Single Plate
 PC—Pressure to all Crankshaft and connecting rod bearings
 Pen—Penfield
 Pet—Peters
 Pic—Pick
 PS—Splash with Pressure
 Q—Quarter Elliptic
 Ray—Rayfield
 Rem—Remy
 Roe—Rockford
 Ros—Ross
 S—Semi Elliptic
 Sal—Salsbury
 Sch—Schebler
 Sci—Scintilla

Sco—Scoe
 Sne—Snead
 Sp—Circulating Splash
 Spe—Special
 Spi—Spicer
 Spl—Splittorf
 S.E.—Standard Equipment
 Sta—Standard
 Ste—Stewart
 Str—Stromberg
 T—T Head
 The—Thermoid
 Thi—Thierner
 Til—Tillotson
 Tim—Timken
 Uni—Universal
 V—Cantilever
 W—G—Warner Gear
 W-M—Willis-Morrow
 Wag—Wagner
 War—Warner
 Weld—Weidely
 Wes—Westinghouse
 Wis—Wisconsin
 X—Sleeve
 Zen—Zenth



DAVIS Series 90 UTILITY BROUGHAM, \$1595—at the factory, plus tax. Trunk and Bumper extra.

A Daring Value— The Utility Brougham

The Davis Utility Brougham is a real sales-builder—a standard, three-door, five-passenger enclosed car, for only \$200 more than the touring car.

Dual-Tone Finish

Optional in green or gray. An innovation in the moderate priced field, adding to Davis individuality and distinction of appearance.

Hydraulic Four-Wheel Brakes

Lockheed Hydraulic Four-Wheel Brakes are standard equipment, at no increase in price. Simple, positive, easily adjusted.

Balloon Tires, Optional

Balloon Tires may be had at moderate additional cost, if the buyer desires.

Cam and Lever Steering

The Ross Cam and Lever Steering Gear eliminates road shock and overcomes the increased steering resistance heretofore caused by balloon tires and four-wheel brakes.

Davis Dealers Are Profiting by This Remarkable Value

GEORGE W. DAVIS MOTOR CAR COMPANY - - RICHMOND, IND.

DAVIS

"BUILT OF THE BEST"

District Sales Offices and Service Stations:

Boston	Detroit	Philadelphia
Buffalo	Houston	Pittsburgh
Chicago	Kansas City	St. Louis
Cleveland	Minneapolis	Toledo
	New York	

Complete stocks carried in all Service Stations.

U. S. Portable Electric Drills are distinguishable from all others by their lightness, perfect balance, power and ease of control by means of the new under-the-finger switch. They are built to stand exceptional shop abuse and are also distinguished by the total absence of features that give novelty but hinder operating efficiency.

Write for catalog 21-B and new reduced prices, also "Handbook of Portable Electric Drill Practice."

Jacobs
Chucks
Standard
Equipment

**The UNITED STATES
ELECTRICAL TOOL CO.
CINCINNATI, OHIO.**



To meet the better brakes demand



THE MANHATTAN RUBBER MFG. CO.

Executive Offices and Factories: PASSAIC, N. J.

Branches:

New York,
Salt Lake City,

Philadelphia,
Chicago,

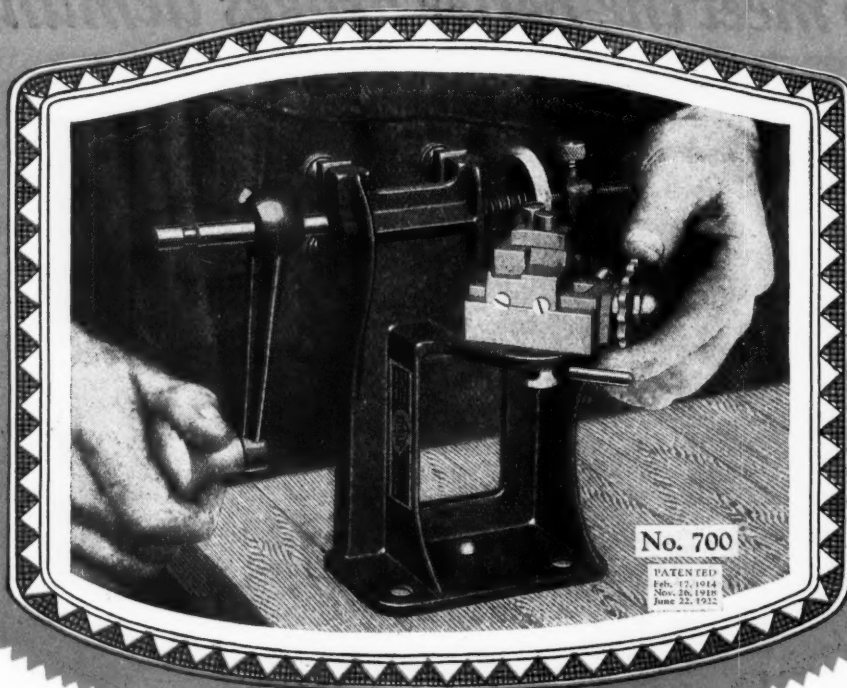
Detroit,
Baltimore,

Minneapolis,
Birmingham,

New Orleans,
Boston,

Pittsburg,
Cleveland,

St. Louis,
Los Angeles.



PAT. JUNE 10, 1924

LITTLE SIOUX VALVE LATHE

Valves should be refaced before grinding in—

especially if they are pitted, carbon coated or warped. That is the only way to be sure of a perfect job. A few turns on the Little Sioux Valve Lathe will give a smooth, even, clean face, requiring very little grinding in to make it seat perfectly.

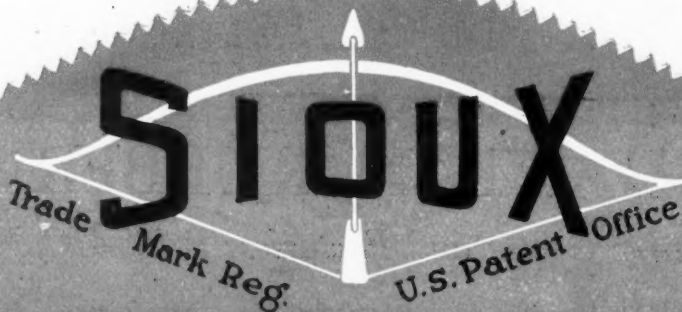
The Little Sioux Valve Lathe refaces—quickly and accurately—any valve up to $2\frac{1}{2}$ ", 30, 45 or 60 degree angle. It cuts the hardest steel valves—even *tungsten steel*. Its *circular cutter* leaves no ridges, and cannot get out of cutting line with the

valve. It stays sharp a long time. The *center adjustment* has a positive stop. When set for a certain size valve it will always be perfectly centered for the same size valve. Two Clamp Devices hold valve stem in perfect alignment.

Your Jobber Sells It

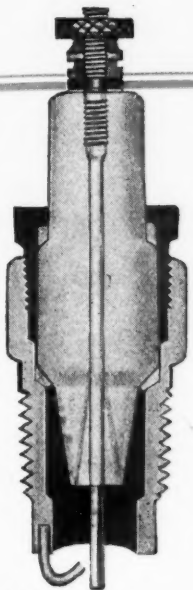
ALBERTSON & CO.

SIOUX CITY, IOWA



BETHLEHEM

SPARK PLUGS



Ford Parts
No. 5200
List Price
60 cents



Built to Ford Specifications

THIS is the plug that was built to the specifications of the Ford Motor Company and officially approved and endorsed by the Ford Engineering Department.

Non-Ford dealers specify it as Bethlehem Spark Plug No. 8.

To hundreds of thousands of Ford owners, the Bethlehem

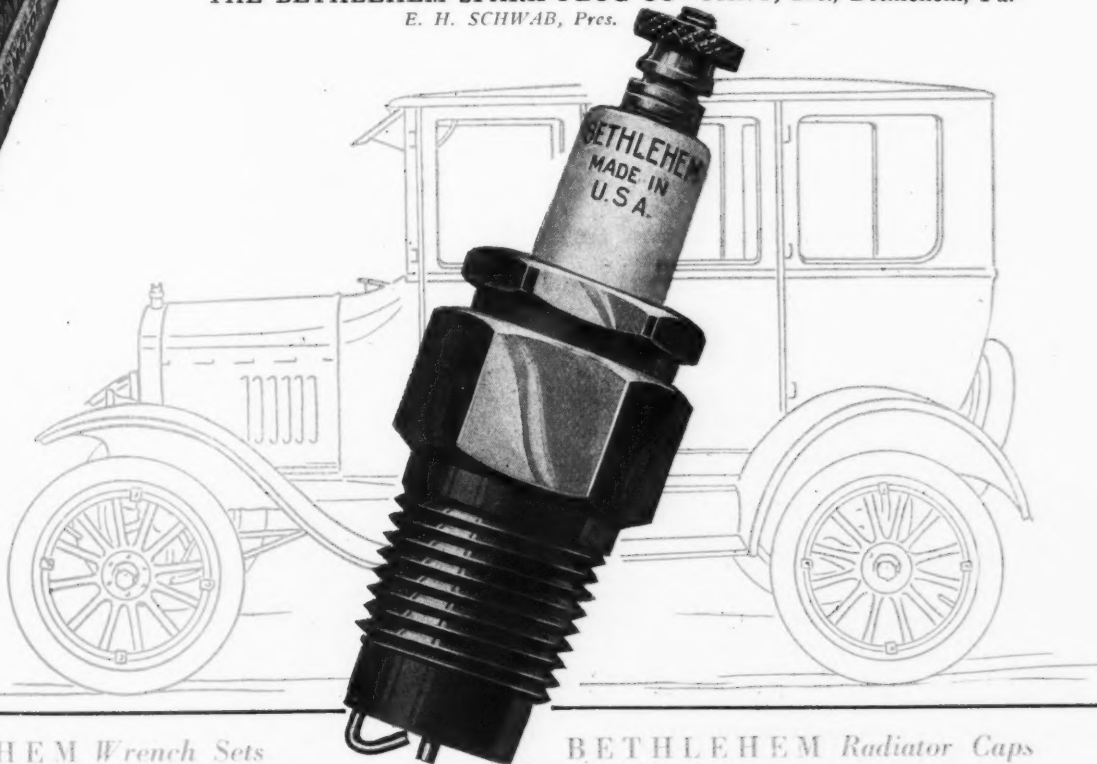
Spark Plug (No. 8) has brought added power, greater economy and regularity of performance such as only a plug of exceptional stamina and special design could give.

Sells for 60c with a good profit to dealers.

Write for THE BETHLEHEM INDEX which tells the correct spark plug to use for each particular car, truck, etc.

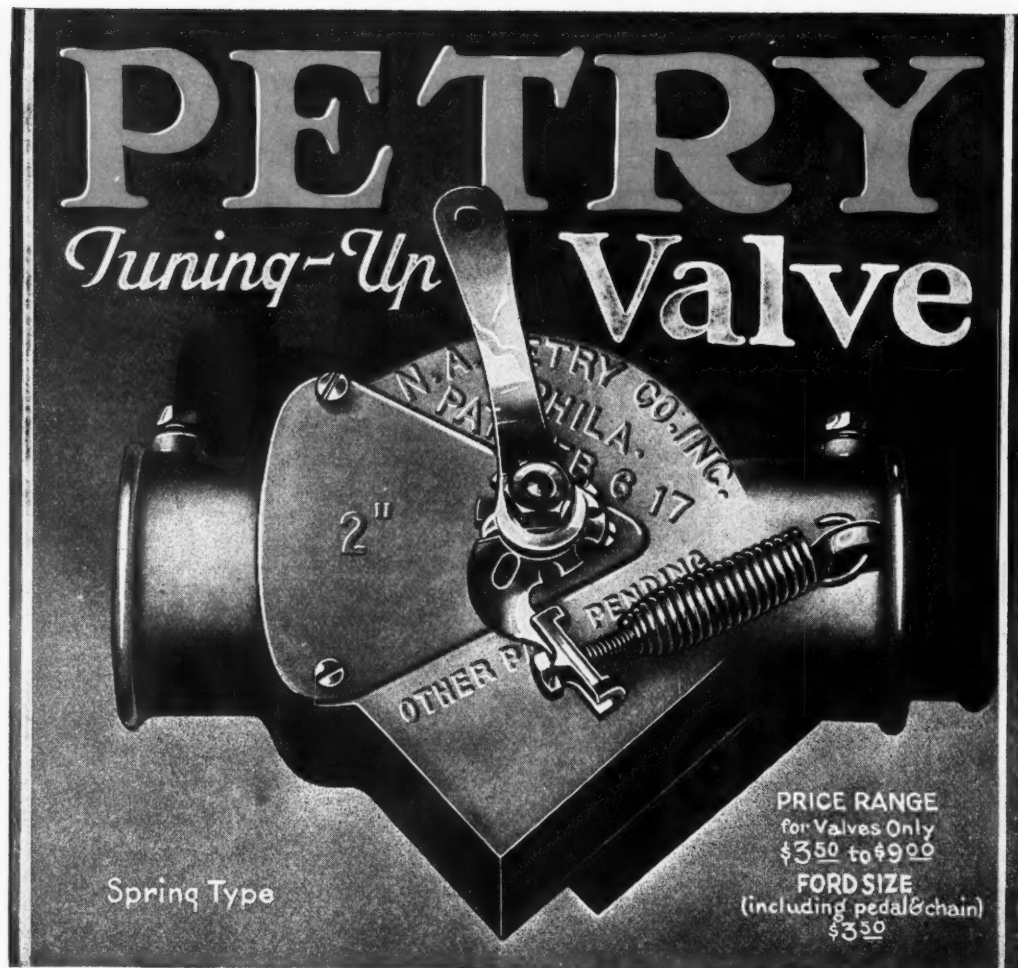
THE BETHLEHEM SPARK PLUG COMPANY, Inc., Bethlehem, Pa.

E. H. SCHWAB, Pres.



BETHLEHEM Wrench Sets

BETHLEHEM Radiator Caps



*Engineered as
carefully as
the motor itself—*

When you sell a Petry you are giving your customer as well built, and as capable a cut-out as he can get—the recognized leader in cut-out design.

Two types available—the spring type as illustrated and the dash controlled type.

The Petry quality and many interesting features will increase your cut-out sales. Stock and sell them exclusively.

Most jobbers carry them. Write us direct for information

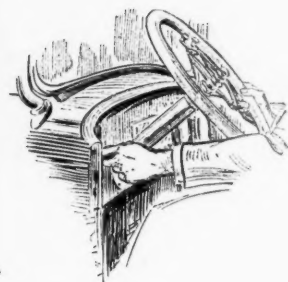
N. A. PETRY COMPANY, INC.

340 North Randolph St.

Philadelphia, Pa.

Pacific Coast Representative

Norman Cowan Co., 451 Rialto Bldg., San Francisco, California.



**Universal
Dash
Control**

Here is a dash control that will successfully operate any cut-out. It is well built and very simple. It permits a 3 in. range of pull—the Petry Dash Controlled Tuning-Up Valve requires only 1½ in.

A quarter turn of the handle to the right will lock it in any position.

A special clamp is provided for attaching the brass casing which carries the wire to the exhaust pipe to keep the movement at the valve uniform with the pull at the dash.

The Petry Dash Control is beautifully finished in nickel aluminum. It costs \$2.00 complete with 54 in. wire, casing and clamp.

ATWATER KENT

R A D I O

ATWATER KENT offers radio merchants greater selling advantages than ever.

The ATWATER KENT line is complete:—there is a set to suit every buyer's preference, including new models of the cabinet type and improved models of the famous ATWATER KENT open type. There are also three loud speakers.

These new models embody improvements that many consider the ultimate in radio designing.

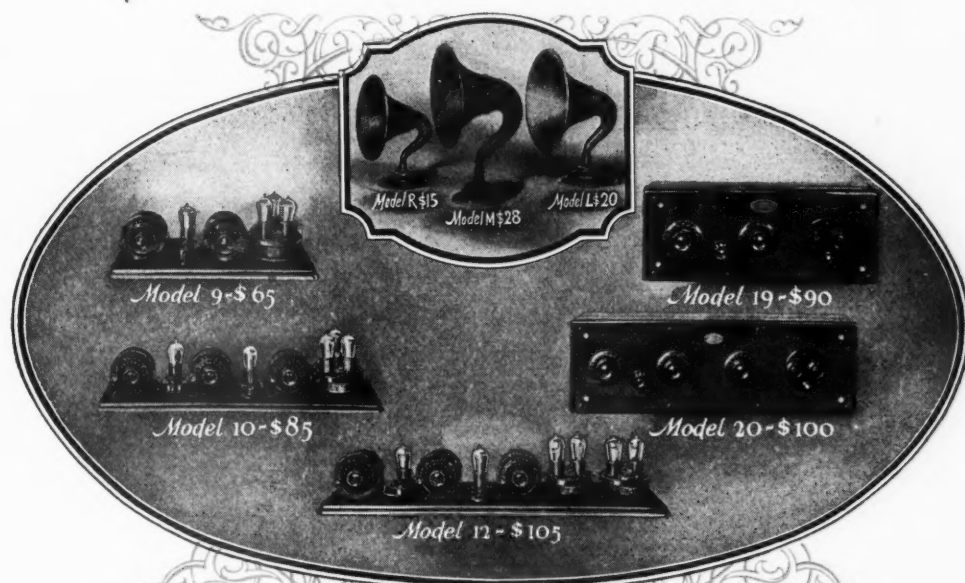
Intensive, forceful ATWATER KENT advertising in nineteen leading national magazines will reach every radio buyer in the country.

ATWATER KENT Radio will be the inevitable choice of those who know—not alone because it offers remarkable value for the dollar spent, but because of what is back of it.

Send for descriptive literature and dealer price list.

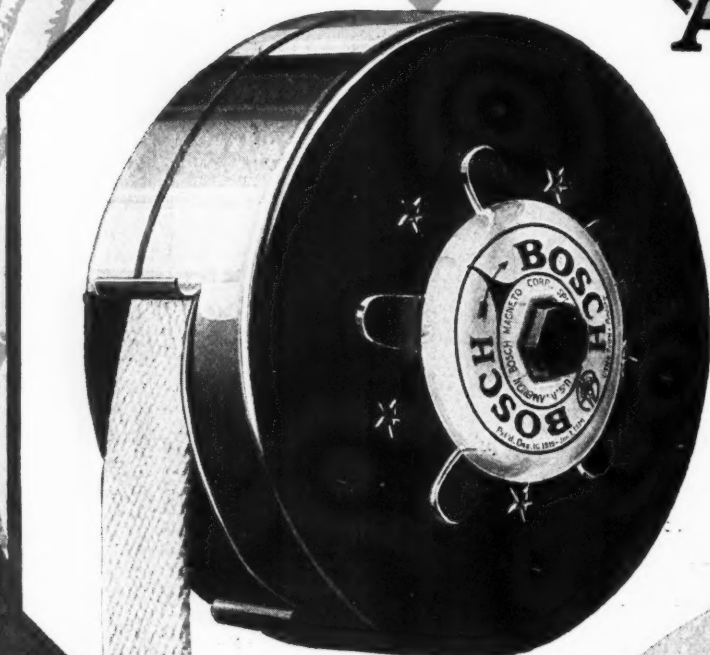
ATWATER KENT MANUFACTURING COMPANY
4957 STENTON AVENUE, PHILADELPHIA, PA.

THINK OF WHAT IS BACK OF IT



The BOSCH

SHOCK ABSORBER



*Smooths
the Road*



**BOSCH
IGNITION
SYSTEM
FOR
FORDS**

**TYPE
600**

Insures quick, easy starts, clean plugs, added power. Has automatic spark advance—is waterproof. Prevents all ignition troubles. Price, \$12.75.



**BOSCH
ELECTRIC
WINDSHIELD
WIPER**

An absolutely reliable automatic cleaner that is operated electrically. Not affected by engine speeds. Puts no burden on the battery. Price, \$9.50.



**BOSCH
RED
SPARK
PLUGS**

The big sure firing, gas tight plug with the unbreakable insulator and the real nickel electrodes. Get the genuine—it's red! Regular sizes \$1.00, Ford size 75c.

Long Line

Kill Balloon "Shimmy" with Bosch Shock Absorbers



Bosch Shock Absorbers are "tandeming" up with Balloon Tires everywhere.

1st Because they are adjustable—by turning a dial it is possible to regulate the amount of control until it exactly meets the balloon tire requirements.

2nd Because they control small spring actions gently without interfering with the cushioning effect of the tires. But because of the quick action and scientific construction, they instantly dampen with silky smoothness all severe rebounds, no matter how fast or heavy they come.

3rd Because they absolutely prevent the galloping and "shimmy" motions which a balloon tire-equipt car develops at certain speeds.

Because of these and other superior features, Bosch Shock Absorbers are being enthusiastically recommended by tire manufacturers and dealers everywhere.

Get a set for the car you sell or drive. Lead the procession—Sell Balloon Equipment, but be sure Bosch goes on too.

AMERICAN BOSCH MAGNETO CORP.
Main Office and Works—Springfield, Mass.

Branches: New York Chicago Detroit San Francisco

DEALERS: Big advantages open to live dealers who can become Bosch Sales Agents and sell the Bosch Long Line of Automotive Necessities.

Another BIG REASON

why dealers prefer the Bosch is:—It is not necessary to carry a lot of special types in stock for various makes of cars, nor are special types necessary for Balloon Tires. The three (3) standard Bosch sizes enable you to equip all cars satisfactorily.

That makes sales easy, insures a quick "turnover" and saves tying up a lot of money in stock.

PRICES PER PAIR

For Fords\$10

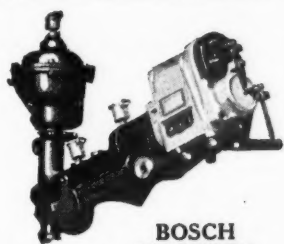
In Canada \$15.

For Medium Cars.....\$15

In Canada \$22.50.

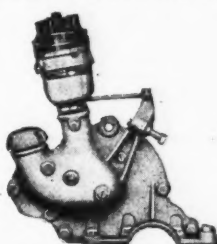
For Heavy Cars and Trucks...\$20

In Canada \$30.



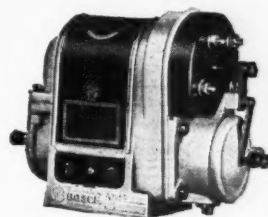
**BOSCH
MAGNETO
FOR
FORDSONS**

Provides Bosch High Tension Magneto Ignition for Fordsons. Eliminates coils and timer. Prevents all ignition troubles. Installed with, or without the Bosch Throttle Governor. Prices on request.



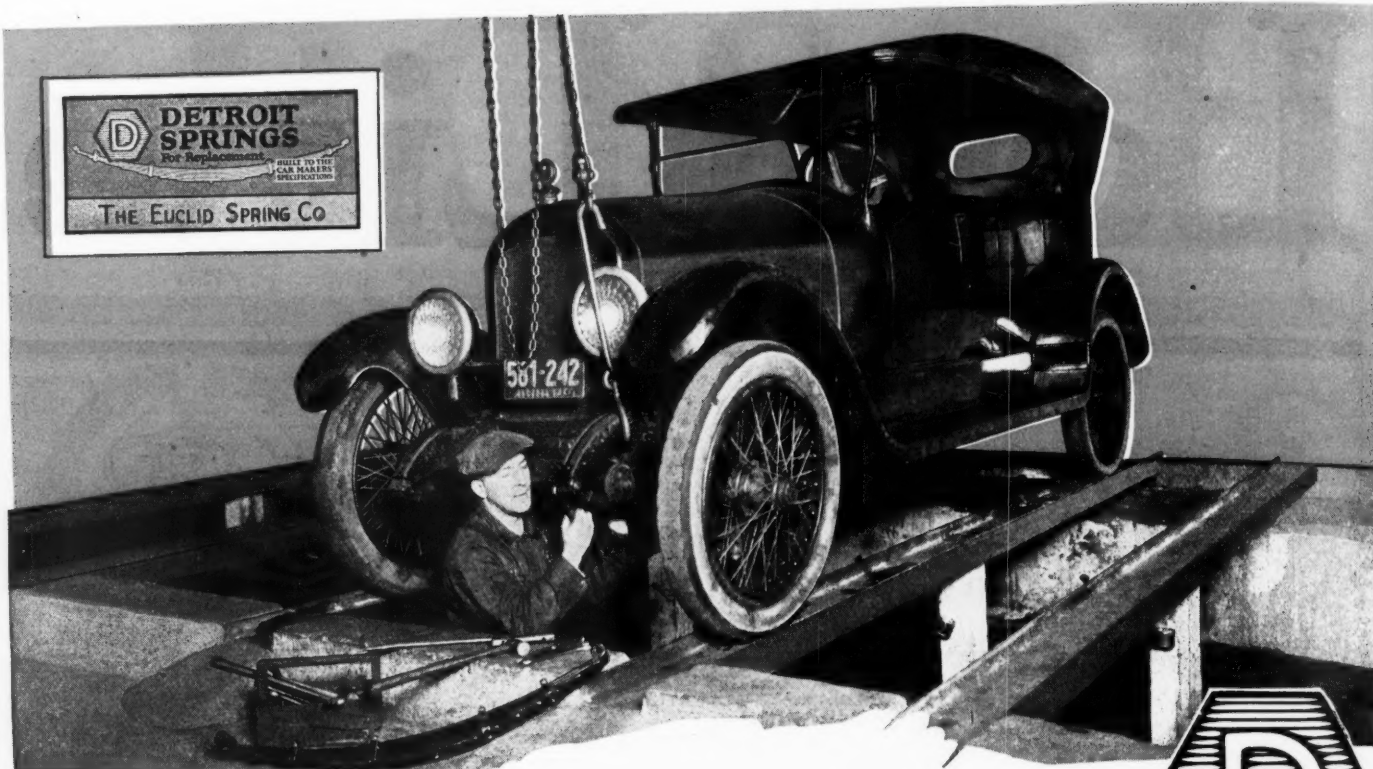
**BOSCH DE LUXE
IGNITION SYSTEM
FOR FORDS
TYPE 513**

Includes the Bosch Coil, and Bosch Compensating Governor, which automatically advances and retards the spark to exactly meet the Ford engine's characteristics. Wonderfully efficient. Price, \$25.00



**BOSCH
HIGH TENSION
MAGNETO**

The world's most dependable ignition system—over four million in use today—in demand everywhere for use on cars, trucks, tractors, motorcycles, motor boats and stationary engines. Price on request.



The Best Known Spring Doctor in Your Neighborhood

That would be a reputation worth having—worth real money.

The *best known* doctor is always the *best* doctor and the best spring doctor in any neighborhood is the one who cures broken springs with Detroit Spring replacements.

Why so? Because Detroit Springs are built to the car makers' specifications. They exactly duplicate the original equipment in weight, strength, number and thickness of leaves, kind and composition of steel. They distribute the load evenly, they restore the original easy-riding quality, they last in spite of the roughest use.

And because Detroit Springs are built to the car makers' specifications, they can be accurately and quickly fitted into place. The Detroit dealer can give quick, as well as dependable service, and that builds reputation with car owners.

No need to carry big stock. When you have a replacement job, just telephone your Detroit Spring distributor. He'll deliver the right spring in a hurry, and you can identify it as genuine by the raised "D" on each clip bolt head or hot stamped in the short plate of every spring. Let us send you the name of your nearest distributor, and a complete price list. Write today.

DETROIT STEEL PRODUCTS CO., 2268 East Grand Blvd., Detroit, Mich.



BUILT TO THE CAR MAKERS' SPECIFICATIONS

These Painted Boards Are Working For You Everywhere—Every Day



What Plan Have You to Take Advantage of Advertising

THE experienced accessory dealer is interested only in nationally known lines of proved quality.

AC Spark Plugs and AC Speedometers are of proved quality—and they are nationally advertised through magazines, painted boards, newspapers and by many other means. This national advertising makes them well known to the public, reduces sales resistance and makes them easy for the

dealer to sell.

Dealers can greatly increase their business by watching AC's advertising, displaying AC merchandise, and by identifying their store more closely with the popularity and prestige of the AC line.

When they do this and follow it up by using the sales thoughts contained in the advertising, they then will get the full benefit of the AC national program.

Sell AC Products—Their Quality and Popularity Assure Demand and Profit

AC Spark Plug Company, FLINT, Michigan

AC-SPHINX
Birmingham
ENGLAND

Makers of AC Spark Plugs—AC Speedometers

U. S. Pat. No. 1,135,727, April 13, 1915; U. S. Pat. No. 1,216,139,
Feb. 13, 1917. Other Patents Pending

AC-OLEO
Levallois-Perret
FRANCE

"—And Then the Car Frame Was Changed!"

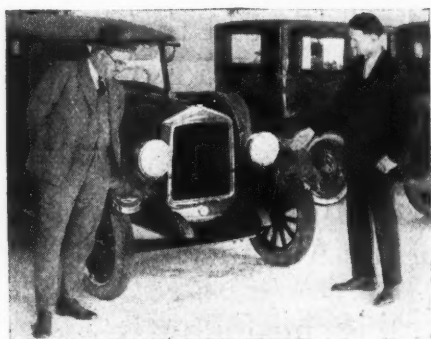
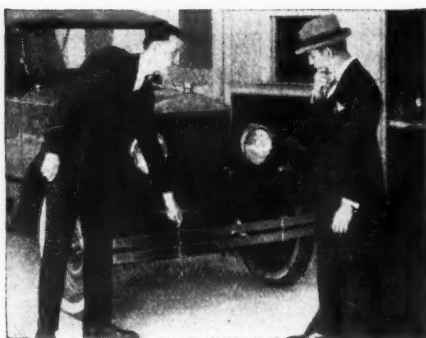
Here Are Two Picture Stories That Show Why Stewart Unequaled Parts Service, and Standard Discounts, Always Mean Bigger Profits For The Dealer, Than "What-Will-You-Have" Discounts, on Unknown Bumper Brands of Doubtful Quality!



The "X" Way

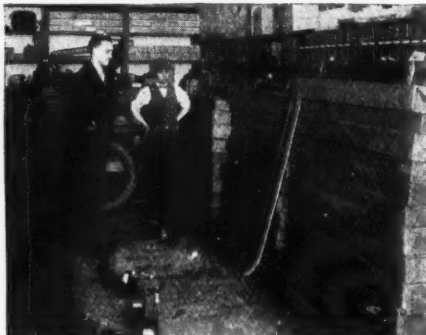
1—The salesman for "X" bumpers offers wildcat discounts, if the dealer will only stock heavily with his product. Thinking only of the big discount, the dealer loads up with "X" bumpers. Quality and service are, for the moment, forgotten.

2—With the stock room loaded with "X" bumpers, the dealer sets out to cash-in for some long profits. However, sales are mighty slow. In fact he finds it hard to make any sales at all. "X" bumpers are unknown. They're not advertised and motorists do not care to experiment.



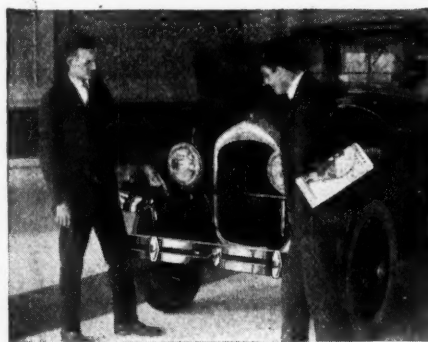
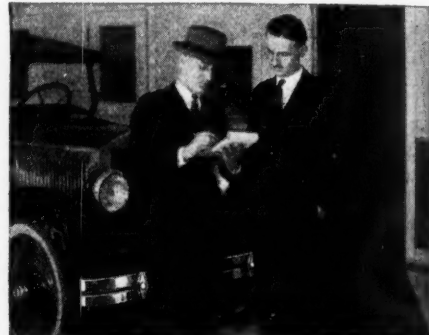
3—To make matters worse for the dealer, a change comes through in the frame of the car he handles. "X" bumpers cannot be installed without a new fitting set. He calls in the "X" salesman, but the salesman can do nothing. There is no "X" fitting set made for the changed car frame.

4—So the dealer stands the losses. Heavily invested in bumpers for which he cannot secure parts, he not only cannot make wildcat profits, but he cannot recover his original investment. The lack of "X" bumper quality and service, have cost this dealer a lot of money!



The Stewart Way

1—The salesman for Stewart Bumpers offers good, reasonable discounts. He does not advise a big stock. Stewart Bumper Service makes that unnecessary! A Stewart Service Station near by will supply any part in a few hour's time.



2—The dealer finds Stewart Bumpers easy to sell! Stewart national advertising, has acquainted every motorist with Stewart Quality, and 100 Per Cent Protection. The dealer has no trouble in quickly turning over his stock of Stewart Bumpers—and quick turnover brings big profits!

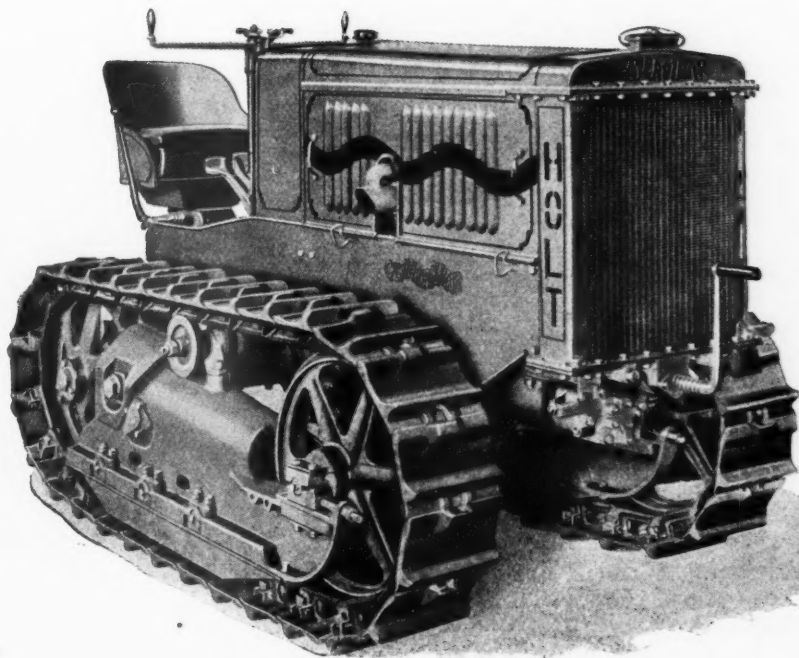
3—When a change in the frame of his car comes through the dealer has his worries quickly dispelled by the Stewart salesman, who calls with a new mounting bracket that fits the changed car frame. That's Stewart Unequaled Bumper Parts Service—the kind every Stewart dealer receives!



4—The Stewart dealer's stock room is not cluttered up with a lot of bumper cartons. A few Stewart guardrails and fitting sets enable him to install a Stewart on any car. The Stewart Service Station carries his stock! He simply displays the samples—and makes the profits!

(REPRINTED FROM THE STEWART LEVER)

Stewart-Warner Speedometer Corporation—Chicago, U. S. A.



A new market for you

You can approach an entirely new market; a rapidly growing all-year market. You can bring up your sales-valleys; stabilize your business; insure it against "drought"; make steady, worth-while profits—by selling "Caterpillars."

Several of our most successful dealers are automobile dealers. They have seen how well selling "Caterpillars" fits with selling automobiles. No competition between them; yet they're closely related as to service. They make an ideal combination.

Every state, county, township; every city, town, village; every contractor, industrial plant, country club; every logging operation, and oil or mining project—each is a potential "Cater-

pillar" user. You can think right away of a lot of "Caterpillar" sales you can make.


The "Caterpillar" dealer enjoys the most substantial, most permanent, most profitable tractor business in his territory. The "Caterpillar" is recognized as the standard of quality; built with painstaking care; in a plant unsurpassed for its rigid standards of precision and accuracy, and famous for its equipment, methods, and processes for maintaining those standards.

Some automobile dealers are going to recognize this fine opportunity to make their business better as well as bigger. Your territory may be open. Better write us about it.

THE HOLT MANUFACTURING COMPANY, Inc.
Peoria, Ill. Stockton, Calif.

Export Division: 250 W. 54th Street, New York
Cable Address: "Caterpillar," New York

CATERPILLAR
Reg. U.S. Pat. Off.



Sell 'em

with this stand

The Automatic Spring Lubricators that come by the Roll!

A roll of R & C Oilers is shown in the display stand. From it you can fit *any* car or truck, with a set of low priced leaf Spring Oilers that *do the work* with unsurpassed efficiency.

Just a case of cutting strips to fit (as you do brake lining) wrapping once around each end of each spring and fastening with the Fasteners (shown in illustration).

R & C Oilers, by providing perfect spring lubrication, assure constant riding comfort and practically eliminate spring breakage. Can't rattle—

are inconspicuous—have no nuts, bolts or laces to loosen!

No stock worries! Little tied up capital!

A real money-making opportunity made better by the attractive display stand (Loaned to dealers upon receipt of order for two or more rolls.) Standard 30 ft. rolls list for \$25.00—7 cents per inch—enough to equip from 6 to 12 cars, Very liberally Discounted. Order today—if your jobber can't supply you, we will ship direct!

Exclusive Distributors Wanted

SOLE MFRS.

R. & C. MANUFACTURING COMPANY
PARKERSBURG, W. VA.



Know 'em by

this mark!

Dead Storage or Live Profits?

LOTS of service stations find winter business so poor that they rent out space for dead storage. Others keep going by eating a big hole in last summer's profits.

You know how it is. Every service station proprietor does.

There is just one way to make money—summer or winter. It's this! Keep folks coming in for something they want.

And that's exactly where the Perfection Heater will help you jack up winter profits.

Every motorist now-a-days wants a heated car. That means "Perfection-heated," of course. For Perfection is the pioneer motor car heater—the only nationally known and nationally demanded heater—the only heater backed

by a strong, consistent advertising campaign.

Ask any Perfection Heater Service Station man, and you'll find he is packing 'em in—that on many fall and winter days he has to turn down installation jobs because his shop is full.

You'll find, too—if he's a friend of yours—that he is making a nice clean profit on every Perfection Heater he sells.

Then ask yourself this question—*"Isn't that the kind of a profit making proposition for me?"*

You will find there's just one answer—"You bet it is!"

Send the coupon for complete information on the Perfection proposition. Do it now. It means live profits this winter.

THE PERFECTION HEATER & MANUFACTURING CO.
6545 Carnegie Avenue Cleveland, Ohio
Manufactured in Canada by Richards-Wilcox Canadian Co., Ltd., London, Ont.



PERFECTION MOTOR CAR HEATERS

The Perfection Heater
& Manufacturing Co.
6545 Carnegie Ave.
Cleveland, Ohio.

Send us, without obligation,
the story on how to make
money this winter.

Name

Address

City

Bosch

*Originators of Bosch Automotive
Equipment Mark Their Units With the
Full Name*

ROBERT BOSCH

*and the Trade-Mark Shown Below
You Can Therefore Easily Identify
the Genuine Bosch Products
as Sold the World Over Since 1887*

**Magnetos ~ ~ ~ ~ Horns
Generators ~ Starters
Spot Lights ~ Hydrometers
Magneto Generators**

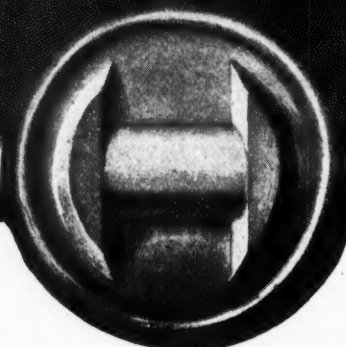
ROBERT BOSCH MAGNETO CO INC.

Otto Heins, Pres.

123 West 64th Street ~ ~ ~ ~ New York City
Service Stations in Principal Cities the World Over

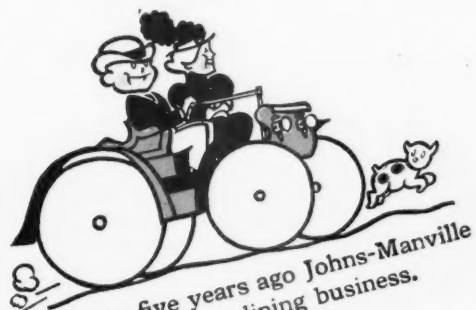
**Always look for
this TRADE MARK**

**and Specify
ROBERT BOSCH**



Dealers ~ Send For

Franchise Details



Twenty-five years ago Johns-Manville was in the brake lining business.



It's safer to stop with Johns-Manville Asbestos Brake Lining.



There are two ways to China but only one way to make good brake lining. Use only best long-fibred asbestos as Johns-Manville does.



In many American cities brake inspection is a law. Keep your customers out of trouble with Johns-Manville Asbestos Brake Lining.



Fill in one of these certificates every time you examine a motorist's brakes. It keeps his business in your shop. Get a supply from your distributor.



It's cheaper to stop with Johns-Manville Asbestos Brake Lining.



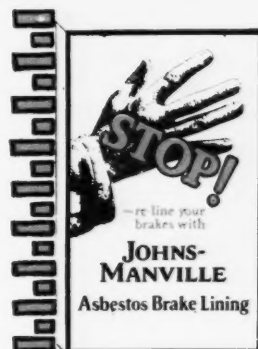
Going or coming! A Johns-Manville Flange Sign gets the motorist's eye both ways because its arresting message is printed on both sides.



You can talk Brake Lining to hundreds of prospects in your local newspaper. Johns-Manville will furnish cuts and copy free.



A few turns of the wrench or relining? Regular brake inspection will keep their brakes efficient.



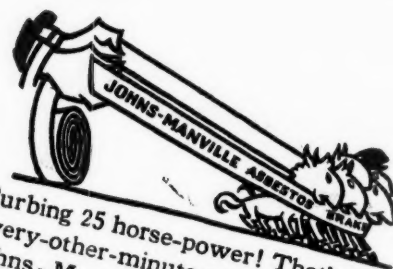
The Johns-Manville Flange Sign reminds 'em of their brakes.



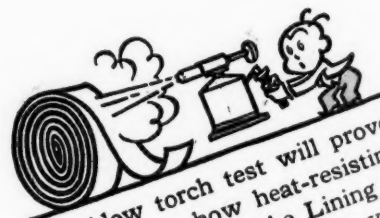
The postman can be one of your best salesmen. Send postcards to your prospects suggesting re-lining. Get a supply from Johns-Manville free!



Another salesman — your mechanic. He can get lots of profitable relining business by examining brakes of cars that pass through his hands with other ailments.



Curbing 25 horse-power! That's the every-other-minute performance of Johns-Manville Brake Lining in stopping the average car in traffic.



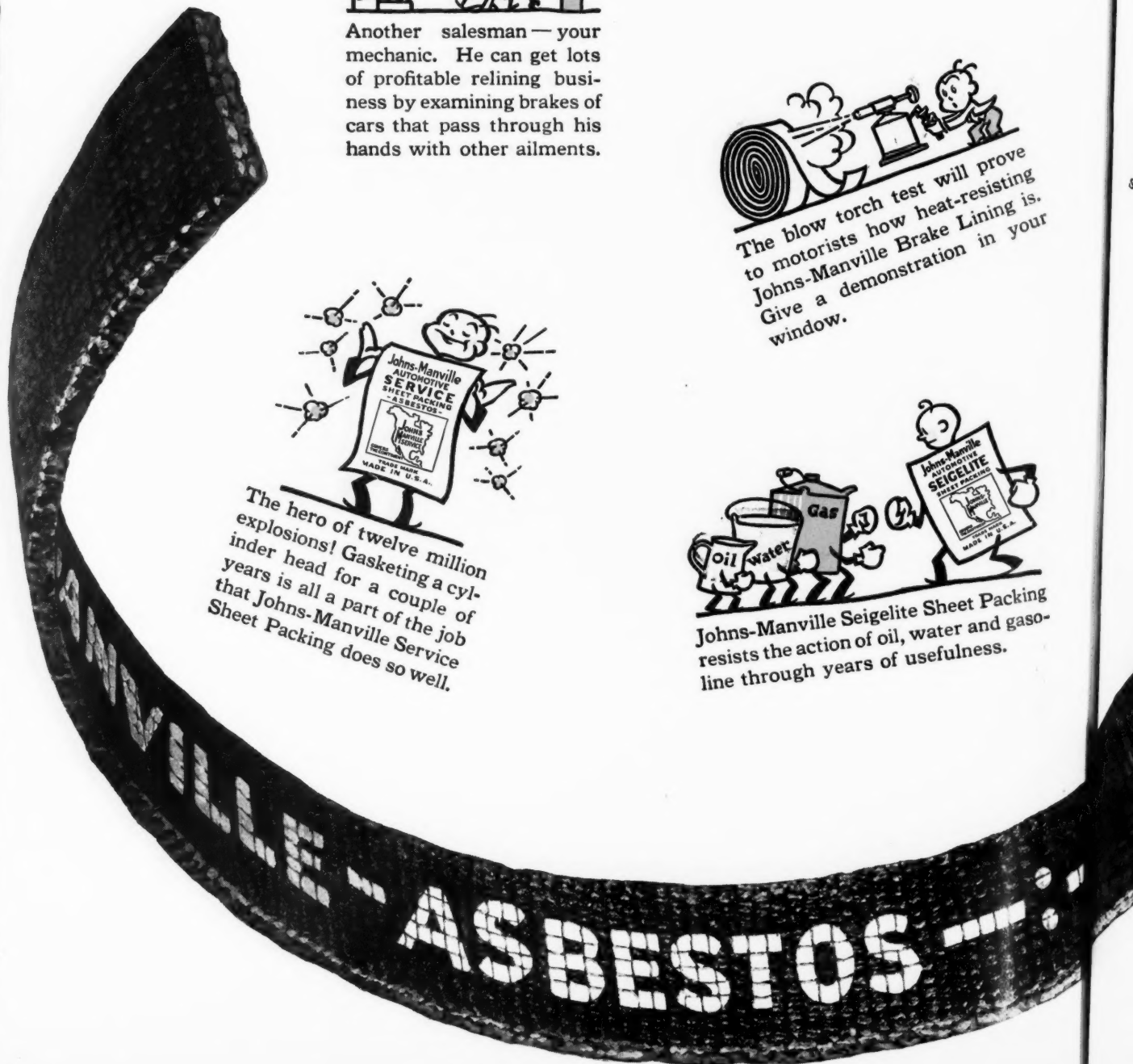
The blow torch test will prove to motorists how heat-resisting Johns-Manville Brake Lining is. Give a demonstration in your window.

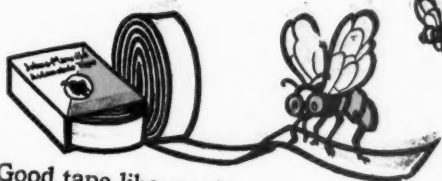


The hero of twelve million explosions! Gasketing a cylinder head for a couple of years is all a part of the job that Johns-Manville Service Sheet Packing does so well.

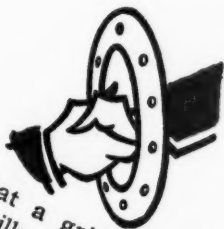


Johns-Manville Seigelite Sheet Packing resists the action of oil, water and gasoline through years of usefulness.





Good tape like good honey is sticky.
That's Johns-Manville Automobile
Tape—sticky always.



What a grip! Johns-
Manville Clutch Facings
are both woven and pressed
to fit disc clutches of all
standard American cars.



No rubber allowed in Johns-
Manville Jewett Rings. For
use wherever a ring of small
cross-section is required —
particularly adapted for water-
pump shafts.

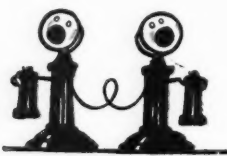


Bring profits into your cash register
by lining up with Johns-Manville
through the Distributors listed on
the next page.

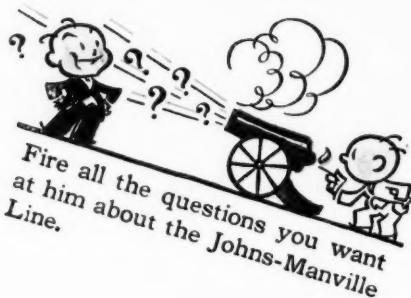


and on the
next page.

Choose Your
Distributor
from this Page



Get connected with
the nearest one.



Alabama

Moore-Handley Hardware Co.,
Birmingham
Johnson Tire & Auto Co., Montgomery

Arkansas

Fort Smith Automotive Supply Co.,
Fort Smith
Crow-Burlingame Co., Little Rock

California

Chanslor & Lyon Co., Fresno
The Banta Company, Los Angeles
Chanslor & Lyon Co., Los Angeles
Featherstone, E. A., Los Angeles
McCoy Motor Supply Co., Los Angeles
Chanslor & Lyon Co., Oakland
Weinstock-Nichols Co., Oakland
Kimball-Upson Co., Sacramento
P. W. Gavin Company, San Diego
Chanslor & Lyon Co., San Francisco
McCoy Motor Supply Co., San Francisco
Weinstock-Nichols Co., San Francisco
California Auto Supply Co., Stockton

Colorado

Auto Equipment Co., Denver
Foster Auto Supply Co., Denver
Motor Accessories & Tire Co., Pueblo

Connecticut

Hessel & Hoppen Co., New Haven
Motor Tire Service Co., Putnam

District of Columbia

National Electrical Supply Co.,
Rubel, Chas., & Co.

Florida

Baughman Company, G. Norman,
Jacksonville
Baughman Company, G. Norman, Miami
Baughman Company, G. Norman, Tampa

Georgia

The Frank Corporation, Savannah

Illinois

Chicago Automobile Supply House,
Chicago
Motor Car Supply Co., Chicago
Sheridan Auto Supply Co., Chicago
Tenk Hardware Co., Quincy
Washington Auto Supply Co., Washington

Indiana

Orr Iron Co., Evansville
Lomont & Co., Ft. Wayne
The I. J. Cooper Rubber Co., Indianapolis
Goodlin Auto Equip. Co., South Bend

Iowa

Cedar Rapids Auto Supply Co., Cedar
Rapids
Sieg Co., Davenport
Herring Motor Co., Des Moines
Repass Auto Co., Waterloo

Kansas

The Weldon Motor Supply Co., Salina
Southwick Auto Supply Co., Topeka
The Massey Hardware Company, Wichita

Kentucky

O. W. Murphy Co., Inc., Lexington
Peaslee-Gault Co., Louisville

Louisiana

Borden-Aleklen Auto Supply Co., Inc.,
New Orleans
Interstate Electric Co., Shreveport

Maine

The Farrar-Brown Company, Inc.,
Portland

Maryland

Auto Supply Co., Baltimore
Coggins & Owens, Baltimore

Massachusetts

Lincoott Supply Co., Boston
Motor Tire Service Co., Fitchburg
Duncan & Goodell Co., Worcester
Motor Tire Service Co., Worcester

Michigan

E. A. Bowman, Inc., Detroit
Cummings Bros., Flint
Tisch Auto Supply Co., Grand Rapids

Minnesota

Kelley-Duluth Co., Duluth
Minneapolis Iron Store Co., Minneapolis
Reinhard Bros. Co., Minneapolis
Nicols, Dean & Gregg, St. Paul

Missouri

Joplin Supply Co., Joplin
The Faeth Company, Kansas City

Missouri (cont'd)

Ayers Auto Supply Co., St. Joseph
Beck & Corbitt Iron Co., St. Louis
Fred Campbell Auto Supply Co., St. Louis
Geller, Ward & Hasner, St. Louis
Ozark Motor & Supply Co., Springfield

Montana

Northwestern Auto Supply Co., Billings

Nebraska

Nebraska Buick Auto Co., Lincoln
Nebraska Buick Auto Co., Omaha
Storz-Western Auto Supply Co., Omaha

Nevada

Nevada Auto Supply Co., Reno

New Hampshire

Thompson & Hoague Company, Concord

New Jersey

Economy Auto Supply Co., Newark
Pruden Hardware Co., Newark

New York

Albany Hardware & Iron Co., Albany
Martin-Evans Co., Brooklyn
H. D. Taylor Co., Buffalo
Morrow Distributing Corp., Elmira
Weaver-Ebling Automobile Co., N. Y. C.
Pruden Hardware Co., W. E., N. Y. C.
Whittemore-Sim Co., Inc., N. Y. C.
The Olmsted Co., Inc., Syracuse

North Carolina

Carroll's Auto Supply House, Charlotte
Glasgow-Stewart & Company, Charlotte
Automobile Supply Co., Wilmington

North Dakota

Grant-Dadey Company, Fargo

Ohio

The Penn. Rubber & Supply Co., Akron
C. & D. Auto Supply Co., Cincinnati
The I. J. Cooper Rubber Co., Cincinnati
The Penn. Rubber & Supply Co., Cincinnati
The Penn. Rubber & Supply Co., Cleveland
The I. J. Cooper Rubber Co., Columbus
The Penn. Rubber & Supply Co., Columbus
The I. J. Cooper Rubber Co., Dayton
The Penn. Rubber & Supply Co., Toledo
The Penn. Rubber & Supply Co., Youngstown

Oklahoma

Severin Tire & Supply Co., Oklahoma City
Severin & Company, Tulsa
Machinery & Supply Co., Tulsa

Oregon

Wiggins Company, Inc., Portland
Chanslor & Lyon Co., Portland

Pennsylvania

Motor Accessories Co., Allentown
Central Supply Co., Altoona
The Penn. Rubber & Supply Co., Erie
Front Market Motor Supply Co., Harrisburg
General Auto Supply Co., Harrisburg
Johnstown Auto Co., Johnstown
General Auto Supply Co., Lancaster
The Penn. Rubber & Supply Co., Oil City
Berroldin Auto Supply Co., Philadelphia
Gaul, Derr & Shearer Co., Philadelphia
Roberts Electric Supply Co., H. C., Phila.
Dyke Motor Supply Co., Pittsburgh
Jackson Motor Supply Co., Pittsburgh
American Auto Supply Co., Inc., Scranton
General Auto Supply Co., York

Rhode Island

Belcher & Loomis Hardware Co.,
Providence

South Carolina

Frank Co., Inc., C. D., Charleston
D. W. Alderman, Jr., Inc., Florence
D. W. Alderman, Jr., Inc., Greenville

South Dakota

L. & L. Motor Supply Co., Sioux Falls

Tennessee

Southern Auto Supply Co., Chattanooga
The I. J. Cooper Rubber Co., Knoxville
Osburn-Auston & Co., Memphis
Auto Supply Co., Nashville
The I. J. Cooper Rubber Co., Nashville

Texas

Ferris-Dunlap Co., Dallas
Hans Johnson, Dallas
Tri-State Motor Company, Inc., El Paso
The Equipment Co. of Texas, Fort Worth
Meyer Co., Jos. F., Houston
The Southern Equipment Co., San Antonio
McCauley-Ward Motor Supply Co., Waco

Utah

Inter-Mountain Electric Co.,
Salt Lake City
Motor Mercantile Co., Salt Lake City

Vermont

Vermont Hardware Co., Burlington

Virginia

The Owens-Merritt Co., Danville
Piedmont Hardware Co., Danville
Crump Co., Benj. T., Richmond
Meadows-Price Co., Roanoke

Washington

Chanslor & Lyon Co., Seattle
Reynolds & Reynolds, Seattle
Chanslor & Lyon Co., Spokane
Holley-Mason Hardware Co., Spokane

West Virginia

Williams Hardware Co., Clarksburg

Wisconsin

Clemons Auto Supply Co., Eau Claire
Andrae & Sons Co., Julius
Milwaukee
Shadbolt & Boyd Iron Co., Milwaukee
Tisch Auto Supply Co., Milwaukee
Western Motor Supply Co., Milwaukee
Milwaukee

Wyoming

Auto Equipment Co., Casper

ALBERTA

The Motor Car Supply Co.,
of Canada, Ltd., Calgary
The Motor Car Supply Co.,
of Canada, Ltd., Edmonton

BRITISH COLUMBIA

Marshall-Wells, B. C., Ltd., Vancouver

MANITOBA

Wood, Vallance, Ltd., Winnipeg

NEW BRUNSWICK

The Lounsbury Co., Ltd., Moncton

NOVA SCOTIA

J. J. Snook, Ltd., Truro

ONTARIO

A. Chown & Co., Ltd., Kingston
A. Workman & Co., Ltd., Ottawa
Hyslop Brothers, Ltd., Toronto
Johnston-Deane, Ltd., Toronto
Samuel Trees & Co., Ltd., Toronto
Bowman-Anthony Co., Windsor

QUEBEC

J. S. Mitchell & Co., Ltd., Sherbrooke

SASKATCHEWAN

Wood, Vallance, Ltd., Regina

ARGENTINE

Carlos Goffre & Co., Buenos Aires

AUSTRALIA

Duncan & Co., Pty., Ltd., Melbourne
Cornell, Ltd., Adelaide
Canada Cycle & Motor Agency,
(Queensland, Ltd.), Brisbane
Hislop, Lloyd & Co., Sydney

CHINA

The Koster Company, Shanghai

DENMARK

F. Bulow & Co., Copenhagen

GREAT BRITAIN AND IRELAND

A. C. R. Greene & Co., Ltd., London

JAPAN AND KOREA

Takemura Company, Yokohama

JUGO-SLAVIA

William H. Smyth, Belgrade

MEXICO

Mexico Auto Supply Co., Mexico City

NEW ZEALAND

Jas. J. Niven & Co., Ltd., Wellington

SPAIN

Luis R. Villamil, Madrid

SWEDEN

A. B. Stern & Stern, Stockholm

SWITZERLAND

K. Bissegger Firm, Zurich

UNION OF SOUTH AFRICA

Bartle & Co., Ltd., Johannesburg

URUGUAY

Clericetti & Barrella, Montevideo

JOHNS-MANVILLE INC., 292 MADISON AVENUE AT 41ST STREET, NEW YORK CITY
Branches in 62 Large Cities. For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto

Printed in U. S. A.

Take this combination of facts:



110,000,000 Timken Bearings built
into 15,000,000 motor vehicles.

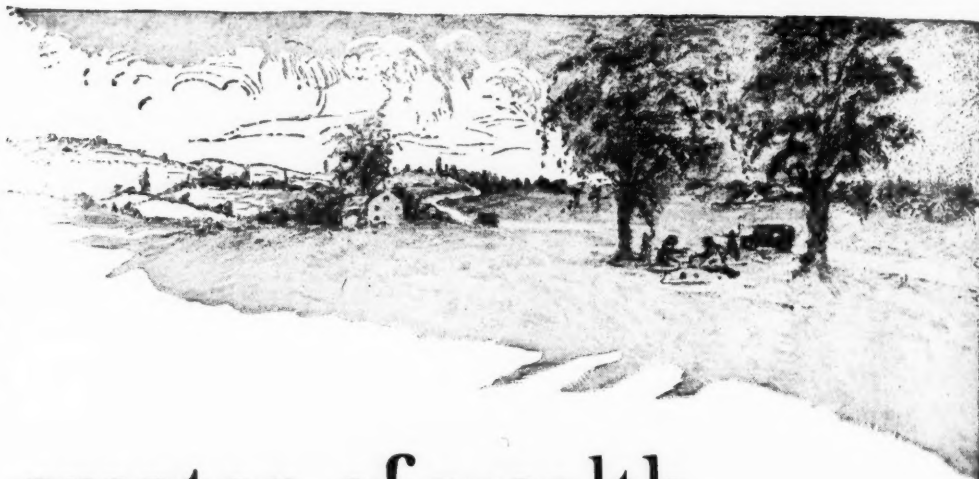
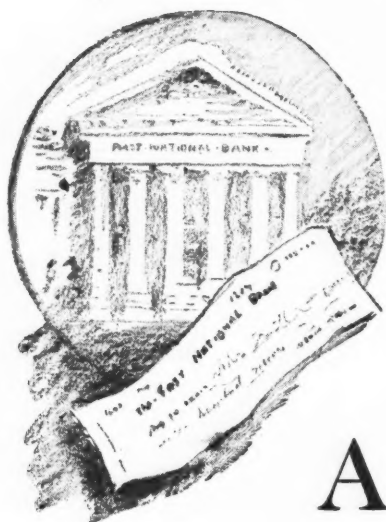


Timken Bearings, advertised nation-
ally, month-in, month-out, for 15
years.



—and you can understand the nod
of approval your salesman gets back
when he tells a prospect—

“The car has Timken Bearings.”



A creator of wealth and an enricher of life

This letter comes from the president of a bank in a mid-western city:

"To my mind, the automobile has been the greatest asset in the development of suburban and small country homes, necessarily meaning the prolongation of life and a greater increase in happiness.

"I have often advised customers of mine to buy cars, as I felt that the in-

creased stimulation and opportunity of observation would enable them to earn amounts equal to the cost of their cars.

"In other words, a man who works six days a week and spends the seventh on his own doorstep certainly will not pick up the extra dimes in the great thoroughfares of life."

In a country banker's office you catch a glimpse of the heart of a country town. To him it confides its hopes and fears and ambitions, the objects it strives for, the obligations it dreads. Helping to solve the problems of all sorts of people, he grows wise in counsel.

"Before you can save money, you first must make money," he says. "And to make it you must have health, contentment and full command of all your resources—the greatest of which is your *time*."

It is because of this philosophy that the bankers have been so large a factor in the progress of the automobile. They look beyond its pleasure-giving qualities and see its economic service—a creator of wealth and an enricher of life.

PRODUCTS OF GENERAL MOTORS

BUICK
CADILLAC
CHEVROLET
OAKLAND
OLDSMOBILE
GMC TRUCKS

Delco and Remy Electrical Equipment • Fisher Bodies • Harrison Radiators • Jacox Steering Gears • AC Spark Plugs—AC Speedometers • New Departure Ball Bearings • Delco-Light Electric Plants • Frigidaire Electric Refrigerators • Jaxon Rims • Brown-Lipe-Chapin Differentials and Bevel Drive Gears • Lancaster Steel Products • Hyatt Roller Bearings • Inland Steering Wheels • Klaxon Horns.

General Motors cars, trucks and Delco-Light products may be purchased on the GMAC Payment Plan. Insurance service is furnished by General Exchange Corporation.

For a proof of this advertisement, suitable for framing, write Advertising Dept. General Motors Corporation, Detroit

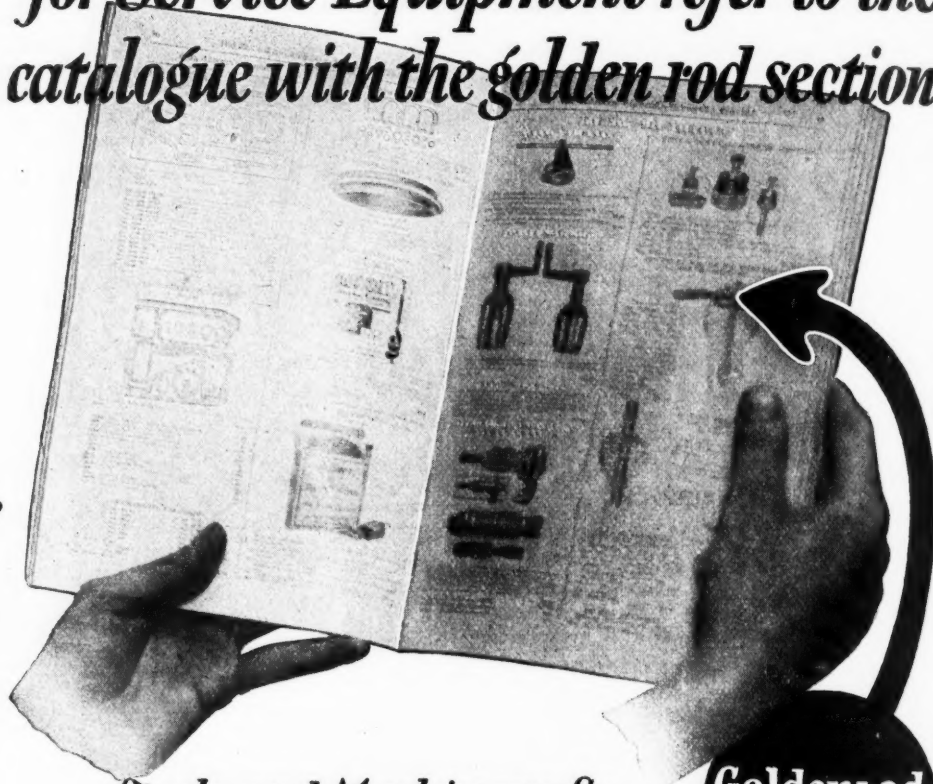
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GENERAL



MOTORS

For Service Equipment refer to the catalogue with the golden rod section



**Goldenrod
Section**

MEMBERS

Service Equipment Associates

Albertson & Co., Inc.
Sioux City, Iowa
T. R. Almond Mfg. Co.,
Ashburnham, Mass.
Bastian-Blessing Company
(Rego) Chicago, Ill.
The Black & Decker Mfg. Co.,
Towson, Md.
Bonney Forge & Tool Works,
Allentown, Pa.
Brunner Mfg. Co.,
Utica, New York
Burton-Rogers Company
Boston, Mass.
Continental Sales Corp.,
Columbus, Ind.
Kellogg Manufacturing Co.,
Rochester, N. Y.
The Manley Mfg. Co.,
York, Pa.
Wood-Imes Mfg. Co.,
Minneapolis, Minn.
Oxweld Acetylene Company,
New York, N. Y., & Chicago, Ill.
Stevens & Company
New York, N. Y.
Weaver Mfg. Company,
Springfield, Ill.
Weidenhoff Products,
Chicago, Ill.
Wright Mfg. Co.,
Lisbon, Ohio

**S
E
A**

*Tools and Machinery for
Automotive Maintenance
are grouped together
in this catalogue.*

To make it easier to locate items of automotive service equipment in general catalogues, many automotive jobbers are grouping all the Service Equipment in one section of their catalogue and printing this Service Equipment Section on paper which is goldenrod in color.

In order to keep up to date on service equipment you have only to pick up your jobber's catalogue and run through the goldenrod section.

This plan is for your convenience in locating and ordering Service Equipment.

When you see a catalogue which has a thick section printed on goldenrod colored paper you can be almost certain that the particular jobber who published this catalogue is specializing on Automotive Service Equipment.

This is a result of the cooperation between the Service Equipment Associates listed opposite and the automotive jobbers throughout the country.

SERVICE EQUIPMENT ASSOCIATES

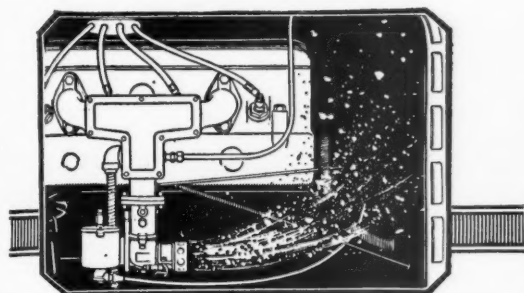
TOWSON

MARYLAND

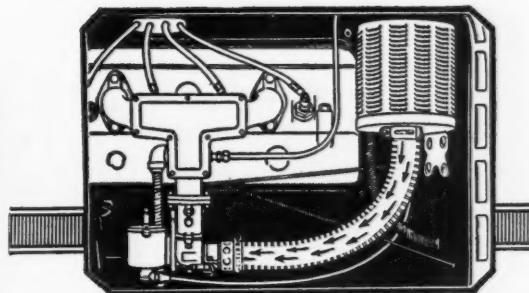
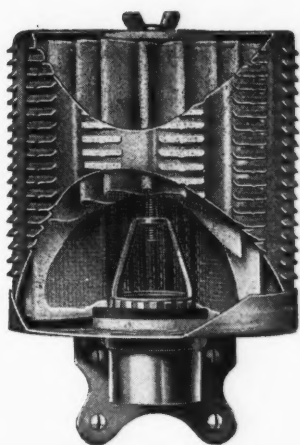
*Or Communicate with any member of
Service Equipment Associates listed at left*



*"The Best-Equipped Shop
Gets the Business"*



DIRTY, DUST-
LADEN AIR
THAT CAUSES
WEAR



CLEAN AIR
NO DUST OR
GRIT TO CAUSE
WEAR

99⁹/₁₀
EFFICIENT

Dealers

Protect the reputation of the cars you handle and your own reputation as a dealer by seeing to it that every car you do sell is equipped with a Protectomotor. Write today for complete information giving details of tests made at the University of California, testimonials from automobile, truck and tractor owners who have reduced operating expenses by equipping machines with Protectomotors, and letters from dealers who are making more money and better satisfied customers by selling and installing Protectomotors.

PROTECTOMOTOR
REG. U.S. PAT. OFF.
Perfect Positive Protection

A Little Dust Is a Dangerous Thing

Coarse dust that enters the motor in the air supply doesn't do much damage—it is blown out with the exhaust. But the fine dust that adheres to the oil forms a grinding compound that wears cylinder walls, pistons, piston rings, gears and makes excessive carbon deposits. By keeping ALL the dust (coarse and fine) out of the motor Protectomotor reduces engine wear more than 75%. Protectomotor does more than clean the air. It controls air temperature, makes for fuel economy and muffles annoying carburetor noises. Protectomotor is 99 9-10% efficient at all speeds.

99⁹/₁₀
EFFICIENT

Prominent Manufacturers who use the Protectomotor as Standard Equipment.

Andre Citroen (France)
Bean Spray Pump Co.
Buffalo Springfield Roller Co.
Bucyrus Co.
J. I. Case Threshing Machine Co.
Clark Tractor Co.
Elgin Street Sweeper Co.
Fageol Motors Co.
Field Force Pump Co.
General Motors Truck Co.
Holt Manufacturing Co.
Ideal Power Lawn Motor Co.
International Harvester Co.
LeRoi Engine Co.
Mack Truck Co.
Turner & Moore Engine Co.

And Many Others

The Protectomotor is also in successful use on practically every make and model of automobile, truck, tractor, and air compressor.

STAYNEW FILTER CORPORATION
ROCHESTER, N. Y.

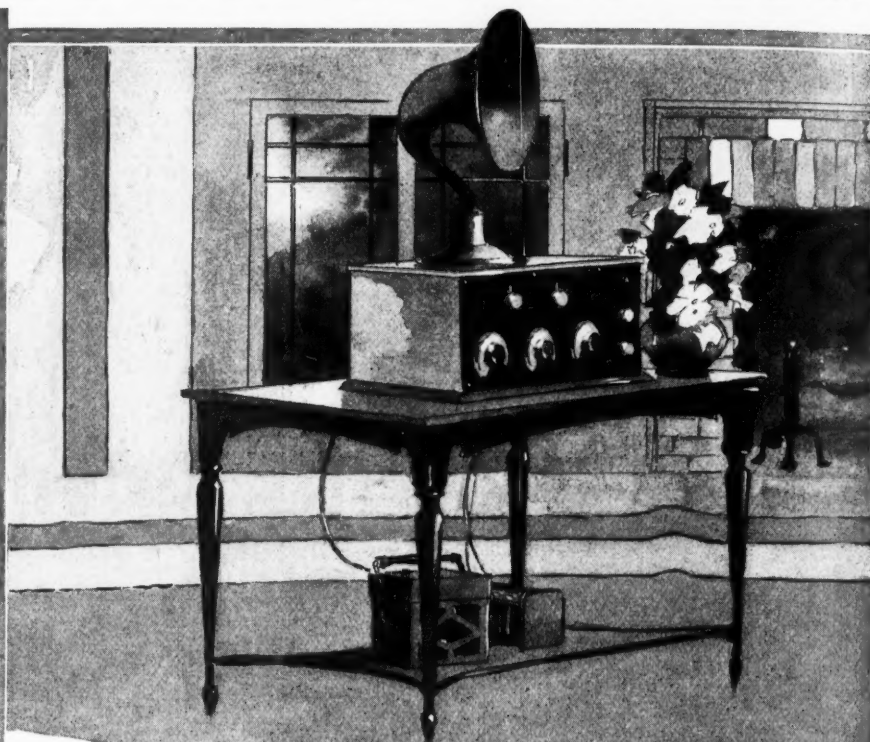
Write for address of nearest branch office.

A motor without a Protectomotor is like a watch without a case

VESTA Offers You

"Vesta Centrals"

ALBANY MOTOR SPECIALTY CORP.,
109 Lexington Ave., Albany, N. Y.
SOUTHERN MOTOR EQUIPMENT CO.,
216 Spring St., Atlanta, Ga.
BOICE MOTOR EQUIPMENT CO., 562
Commonwealth Ave., Boston, Mass.
VESTA BATTERY SALES CO., 21st St.
at Chester, Cleveland, Ohio.
TENNANT BROS., Dallas, Texas.
EQUIPMENT SERVICE CO., 13th at
Lincoln, Denver, Colo.
AUTO ELECTRIC & SERVICE CORP.,
91 Selden Ave., Detroit, Mich.
THE FAETH CO., 1117 W. 8th St., Kan-
sas City, Mo.
McCLELLAND-FELTHOUSE CORP.,
1358 S. Figueroa St., Los Angeles,
Calif.
REINHARD BROS. CO., 11 S. 9th St.,
Minneapolis, Minn.
WALTHER BATTERY SERVICE CO.,
867 St. Charles St., New Orleans, La.
P. J. DURHAM CO., 244 W. 49th St.,
New York, N. Y.
OMAHA BATTERY COMPANY, 2212
Harney St., Omaha, Nebr.
J. H. McCULLOUGH & SON, 257 N.
Broad St., Philadelphia, Pa.
AXWELL EQUIPMENT CO., 240 2d
Ave., Pittsburgh, Pa.
SALT LAKE HARDWARE CO., Salt
Lake City, Utah.
EQUIPMENT SERVICE CO., 2631 Lo-
cust St., St. Louis, Mo.
WATERHOUSE & LESTER CO., 540
Howard St., San Francisco, Calif.
SPOKANE BATTERY & IGNITION CO.,
1201-3 W. Sprague Ave., Spokane,
Wash.

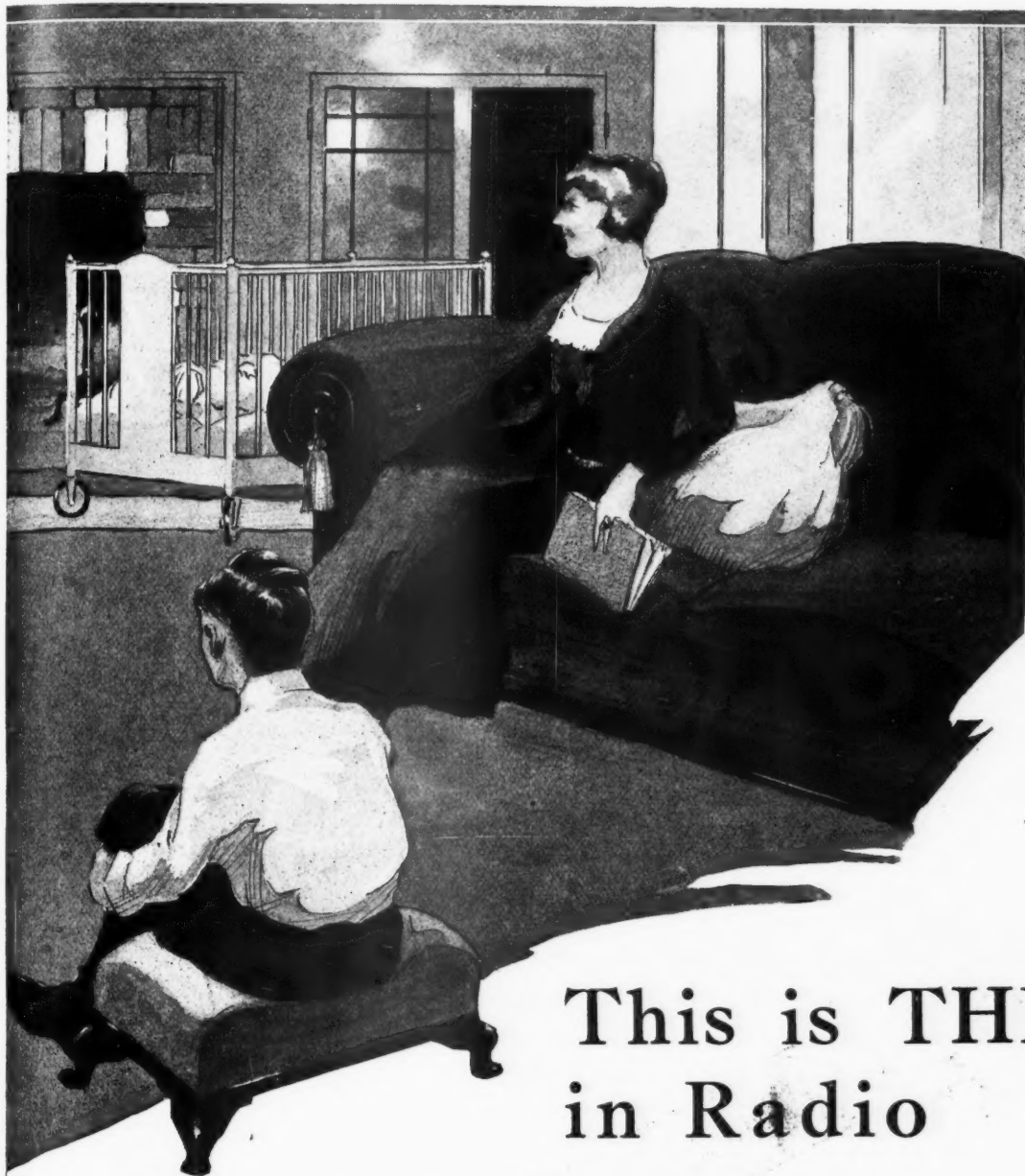


Vesta
"A"
Battery

Vesta
"B"
Battery



a Share of Radio Profits Also



This is THE year
in Radio



HE political campaign will be conducted through the air and everybody will want to listen in. Practically every Radio set already uses storage batteries in the "A" circuit and now Vesta "B" storage batteries are popular because the ability to maintain "B" voltage, by charging, means better Radio reception. Our Bulletin No. 102 tunes you in on Battery profits. Write for it.

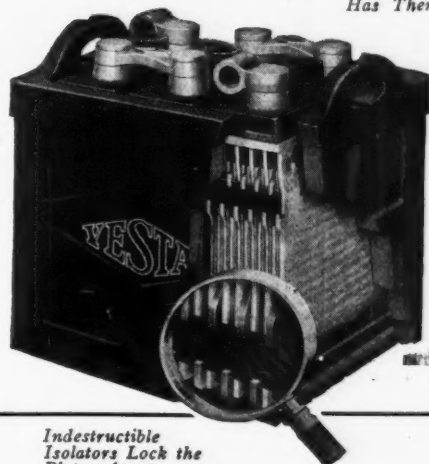
Vesta Battery Corporation

Chicago

VESTA

COSTS LESS PER MONTH OF SERVICE

No Other Battery
Has Them



Indestructible
Isolators Lock the
Plates Apart



EMPIRE BOLTS & NUTS



An Empire cold punched nut will always fit an Empire New Process bolt. The methods by which they are produced have no counterpart anywhere for close accuracy of workmanship. They are unique in that respect — *and also* for their tremendous strength: their ability to outlast any job they are put on.



RUSSELL, BURDSALL & WARD
BOLT & NUT COMPANY

PORT CHESTER, N.Y.

FEMBERWICK, CONN.

CHICAGO

SAN FRANCISCO

ROCK FALLS, ILL.

Makers of Bolts, Nuts and Rivets Since 1845

GATES HOSE

7 PLY AIR HOSE—SUN PROOF



Your air hose gets dragged over the curb and into the street a hundred times a day. That's what wears it out—and that's why Gates Vulco Air Hose is built with a thicker and tougher rubber covering.

Made by the World's Largest
Manufacturers of Fan Belts.

Rickenbacker

A • CAR • WORTHY • OF • ITS • NAME

Here is another unusual feature! This Rickenbacker Eight has a 9-bearing crankshaft and an 8-bearing camshaft.

Everyone knows that this insures long motor life and quietness.

Rickenbacker Motor Company

Detroit, Michigan

Famous "Six" Prices

<i>Sport Phaeton</i>	- - - -	\$1595
<i>Coupe</i>	- - - -	2095
<i>Sedan</i>	- - - -	2195



f. o. b. Detroit—plus war tax

Vertical "Eight" Prices

<i>Sport Phaeton</i>	- - - -	\$2195
<i>Coupe</i>	- - - -	2695
<i>Sedan</i>	- - - -	2795

Rickenbacker

A • CAR • WORTHY • OF • ITS • NAME

And when it comes to acceleration—the outstanding feature of any 8—Rickenbacker is in a class by itself.

Dealers are invited to arrange for an examination at an early date.

Rickenbacker Motor Company

Detroit, Michigan

Famous "Six" Prices

<i>Sport Phaeton</i>	- - - -	\$1595
<i>Coupe</i>	- - - -	2095
<i>Sedan</i>	- - - -	2195



f. o. b. Detroit—plus war tax

Vertical "Eight" Prices

<i>Sport Phaeton</i>	- - - -	\$2195
<i>Coupe</i>	- - - -	2695
<i>Sedan</i>	- - - -	2795



OVERCOMES *these* 3 BIG HAZARDS

for FORD Owners

The Cunning of the Thief who wires around, picks or breaks a lock, or otherwise accomplishes the theft of a locked car.

The Forgetfulness of the Operator who leaves his key in the switch or who either forgets or neglects to attend to special locking devices which he may have.

The Danger to Life and Property caused by accidental locking when in motion—there is no connection with steering gear or transmission.

One push of the switch button shuts off the ignition and automatically locks the car.

Carries the approval of the Underwriters' Laboratories and earns lowest theft insurance rate.

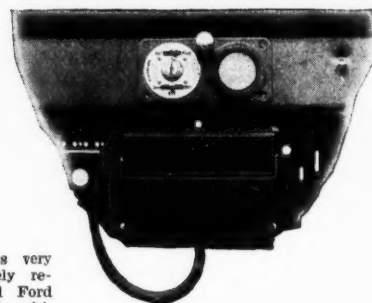
*The ELECTROLOCK will be sold
only through Ford Dealers.*

MITCHELL SPECIALTY COMPANY
Philadelphia, Pa.

Manufacturers of Automobile Body Hardware Since 1914

Electrolock

YOU CAN'T FORGET TO LOCK IT!



Installation is very simple. Merely replace original Ford Switch panel with the ELECTROLOCK panel and wire up. Twenty minutes at the very outside will do the job.

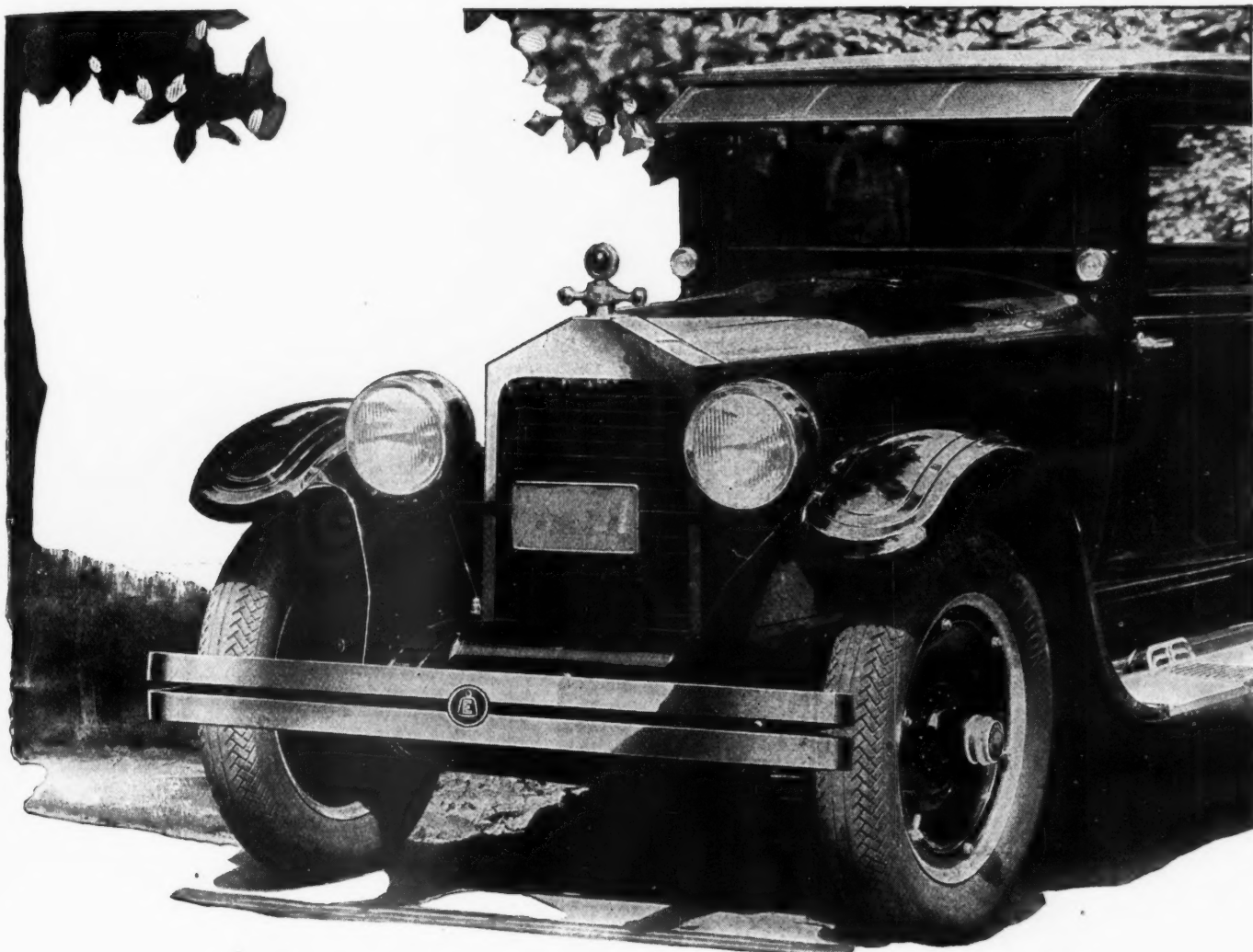
We'll pay
\$500

to the first person who can show us how the ELECTROLOCK can be wired around. It never has been done and we are confident that it never will. If you doubt the effectiveness of the ELECTROLOCK, try this experiment.

Price
Complete

Including dashlight

\$15⁰⁰



"Accessory Before the Fact"

ANY intelligent motorist is "sold" on a good bumper *before he buys his car.*

And that sale means increased profit to YOU.

Your job is simply to *have the good bumper*, well displayed. And remember, two bumpers can be sold as easily as one, and the profit is double.

Eaton Bumpers are the ideal line for you to carry. From the famous EXCALIBUR at \$40, to the "Single-bar" at \$11.00, the Eaton line

covers every requirement of the most fastidious buyers. Tight-Wad or Sportsman, Miser or Millionaire, you can suit them all—perfectly.

A widespread preference on the part of owners of the better cars for the handsome model illustrated here leads to many profitable sales.

Eaton Bumpers are easily and quickly installed, from the "Gard-All" for light cars, to the "Bumperets," now available with special fittings for nearly all makes of cars.

THE EATON AXLE & SPRING COMPANY, CLEVELAND

NEW YORK
616 W. 56th St.

BOSTON
162 Brookline Ave.

PHILADELPHIA
223 N. 22nd St.

CHICAGO
2933 Calumet Ave.

ALBANY
No. Pearl and Van Woert

CLEVELAND
6515 Carnegie Ave.

EATON

BUMPERS





Throughout the whole wide world
are Harrison cooled automobiles

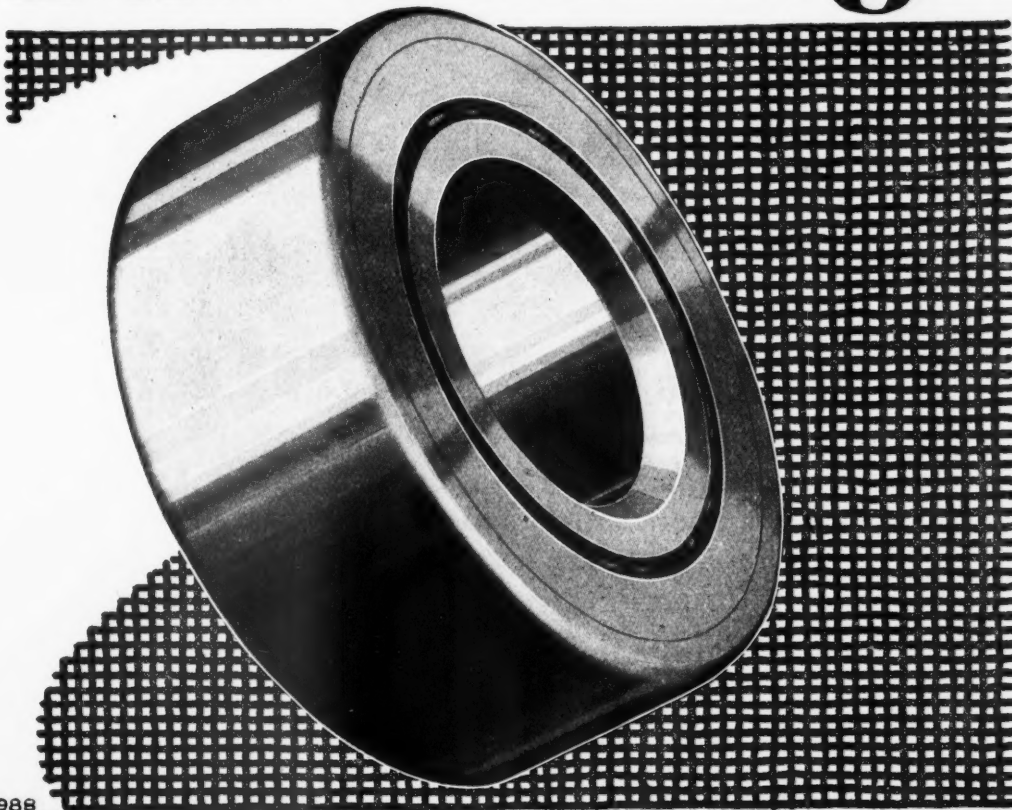
HARRISON RADIATORS

HARRISON RADIATOR CORPORATION, LOCKPORT, NEW YORK



THE MARK OF RADIATOR SATISFACTION

New Departure Ball Bearings



988

There is no substitute for the advantages of lowest frictional resistance, permanent rigidity of shafts and gears, and longer life, which New Departure Ball Bearings give every automotive vehicle. New Departures outsell because they excel.

**THE NEW DEPARTURE MANUFACTURING
COMPANY**
BRISTOL, CONN.

Detroit

Chicago

*Permanent
roads are a
good investment
—not an expense*

How the Motor Industry Set the Pace for Highway Building

The "horseless carriage" of yesterday is now being produced as the modern automobile at the rate of 4,000,000 a year. The total number of motor vehicles registered in the United States is over 16,000,000.

And every automobile produced today is a good automobile, economically serving business and recreation needs of people in every station of life.

But there is an obstacle standing in the way of its maximum service to owners.

For while the automobile industry made paved highways an economic necessity, the mileage of such roads is today years behind the requirements of modern traffic.

Happily motorists everywhere are boosting for more and wider paved highways.

And extensive experience has taught them that Concrete Highways are one of the best all-around investments they can make—an investment that pays big dividends.

As one of our 16,000,000 motorists you know better than anyone else the need for more and wider Concrete Roads. Start now to help your local officials provide them.

PORTLAND CEMENT ASSOCIATION

111 West Washington Street
CHICAGO

A National Organization to Improve and Extend the Uses of Concrete

OFFICES IN 29 CITIES

Replace with FOSTORIA FENDERS

If you are looking for
a new source of PROFIT

get in touch with the nearest Fostoria Distributor

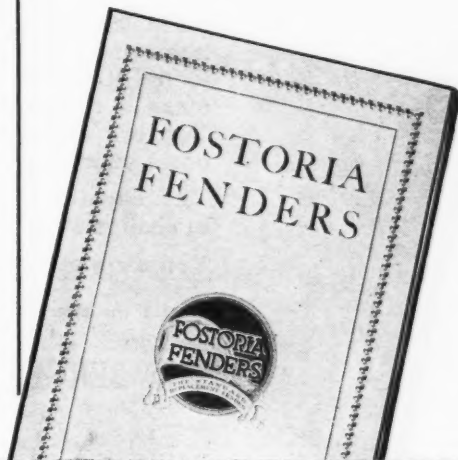
YOU can get a Fostoria Fender for replacement on the most popular cars and trucks without delay from any Fostoria distributor. Fostoria Fenders exactly match original equipment in quality and finish. They are easily in-

stalled—no special tools needed. Fostoria Fenders and Fostoria distribution make it possible for you to quickly and easily convert into profit the big opportunity for fender replacement existing in every market. Investigate—act!



Send for This
FREE BOOK

This attractive booklet tells you all about the profit opportunity in fender replacement and how Fostoria Fenders enable you to get this big new volume of replacement business. No investment in stock beyond immediate needs or in special shop equipment is necessary. Write for this book and learn how.



FOSTORIA FENDER DISTRIBUTORS

CALIFORNIA

Los Angeles: Western Mechanical Works, 516 W. Pico St.
Oakland: Independent Tire Co., 422 23rd St.
San Francisco: G. W. Miller Auto Parts Replacement Co., 506 Golden Gate Ave.

COLORADO

Denver: Wheel Service Co., 501 Broadway.

CONNECTICUT

Hartford: Connecticut Auto Parts Co., 36 Morgan St.
New Haven: Louis H. Weiner, 1105 Chapel St.
New London: New London Auto Parts Co., 571 Bank St.

DISTRICT OF COLUMBIA

Washington: U. S. Auto Sheet Metal Works, Inc., 2609 Pennsylvania Ave., N. W.

FLORIDA

Jacksonville: Auto Parts Co., 125 Clay St.
Tampa: Moody & Wetherell, Inc., 408 Washington St.

GEORGIA

Atlanta: Bailey & Co., Inc., 324 Peachtree St.

ILLINOIS

Chicago: Chicago Auto Parts Co., 3732 S. Wallace St.
Peoria: Peoria Auto Body Repair Co., 5th and Franklin Sts.

INDIANA

Indianapolis: W. J. Holliday & Co., 326 W. Georgia St.

IOWA

Des Moines: Iowa Auto Spring Co., 1406 Grand Ave.

KENTUCKY

Louisville: Longest Bros. Co., 725 S. Third St.

LOUISIANA

New Orleans: Auto Specialty Co., 741 St. Charles St.

MAINE

Portland: Keating & Shaw, Inc., 105 Preble St.

MASSACHUSETTS

Boston: Perrine Quality Products Corp., 48-50 Cum-
mington St.
Lawrence: Lawrence Battery Shop, 281 Methuen St.
Springfield: W. R. Bennet & Son, 2243 Columbus Ave.
Worcester: Bay State Auto Supply Co., 134 Main St.

MICHIGAN

Detroit: Puritan Autoparts Co., 1601 Lafayette Blvd.

MINNESOTA

Duluth: S. & S. Auto Parts Co., 405 E. Superior St.
Minneapolis: Western Spring Mfg. Co., 37 Western
Ave.

St. Paul: D. B. Shotwell Co., 385 Main Ave.

MISSOURI

Kansas City: Motor Industries Corp., 2110 Grand Ave.

St. Louis: Wagner Gear Co., 3216 Locust St.

MONTANA

Butte: Butte Automobile Co., 25 E. Galena St.

NEW JERSEY

Atlantic City: Columbia Sales Co., 2018 Atlantic Ave.
Newark: Superior Lamp Mfg. Co., 38 Branford Pl.

NEW YORK

Buffalo: Standard Tire & Equipment Co., 1025
Main St.

Elmira: Auto Service Stations, Inc., 361 State St.
New York: G. J. Sales Co., Nelson Ave. and Manley
St., Long Island City.
New York: Superior Lamp Mfg. Co., 150 W. 52nd St.
Rochester: Lawrence B. Welch, 260 South Ave.
Syracuse: North Side Garage, 911 N. Salina St.
Troy: Chauncey L. Bradt, 212 River St.

NORTH CAROLINA

Winston-Salem: Central Storage, 423 N. Main St.

OHIO

Akron: Wm. Cunningham, 169 Henry St.
Canton: Wm. Berg Co., 527 3rd St., N. E.
Cincinnati: Sheet Metal Products Co., 1249 Plum St.
Cleveland: Cleveland Fender Sales Co., 1970 E.
59th St.
Dayton: Dayton Auto Sales & Parts Co., 235 S.
Jefferson St.
Portsmouth: Portsmouth Auto Supply Co., 931
Gallia St.
Youngstown: Harry Yarov, 34 Holmes St.

PENNSYLVANIA

Altoona: Altoona Auto Accessories Co., 2210 Beale
Ave.
Erie: Rubins' Auto Parts Co., 150 E. 9th St.
Philadelphia: F. C. Hornbeck & Co., 309 N. 15th St.
Pittsburgh: Pitt Auto Gear Co., 3310 Penn Ave.
Scranton: K. & K. Auto Parts Co., 240 Penn Ave.
Williamsport: Williamsport Auto Parts Co., 263
N. 3rd St.

RHODE ISLAND

Providence: Franklin Auto Supply Co., Broad and
Franklin Sts.

TENNESSEE

Nashville: Southern Auto Parts Co., 215 Fourth
Ave., S.
Knoxville: Knoxville Auto Parts Co., 317 E. Depot
Ave.

TEXAS

Fort Worth: Fort Worth Wheel & Rim Co., 312
Throckmorton St.
Houston: Southwestern Wheel & Rim Co., 312
Caroline St.

UTAH

Salt Lake City: Johnson Auto Metal Works, 27 W.

VIRGINIA

Norfolk: Norfolk Motor Equipment Corp., 801
Granby St.
Roanoke: Shockley Motor Co., 518 Commerce St.
Richmond: Bailey & Co. of Va., Inc., 711 E. Main St.

WASHINGTON

Seattle: G. W. Miller Co., 715 E. Pine St.

Spokane: Auto Gear & Axle Co., 1104 W. 1st Ave.

WEST VIRGINIA

Huntington: Huntington Auto Supply Co., 940
Third Ave.

WISCONSIN

LaCrosse: Auto Parts Service Co., 127 N. Third St.

CANADA

Montreal: Finestone Auto Parts Co., 973 St. Denis St.

Vancouver: L. G. Ferrier, 648 Howe St.

EXPORT

New York: Rodriguez & Co., Inc., 1457 Broadway.

The Fostoria Pressed Steel Company,
Department B, Fostoria, Ohio.

Send me your free booklet on the market-
ing of fenders for replacement. It is
understood that this request in no way
obligates me.

Name

Address

City State



Days are long when there's nothing to do but wait

That's about the way the average motorist feels when his car is laid up for repairs. He doesn't realize how much he depends on the old boat until it is out of commission for a few days. Speed in repairing machines is one of the first requirements for the successful service station. The owner begrudges the time much more than he does the expense.

A complete well-kept stock of parts is essential. To be out of the part needed, necessitating factory shipment—that is the crowning injury. A delay of this kind is resented. In the patron's mind it indicates carelessness. It destroys good will.

A compact layout of Berloy Steel Bins is the solution. Adjustable compartments make it possible to carry a small stock of the slow moving items and a large quantity of the rapid sellers. Your stock can be regulated to the demand. Big labels and an individual bin for each part make a running inventory possible. You are never out of anything. You are never overstocked. Minimum stocks and frequent turnover boost your profits.

The patented Berloy divider between bins is boltless, making it possible to change bin sizes instantly, without tools.

You can buy one unit or a 48 unit system.

Ask the nearest office to send you automotive catalog R-30. It gives full details.

THE BERGER MANUFACTURING CO. CANTON, OHIO

Boston
St. Louis
Los Angeles

New York
Kansas City
Dallas

Philadelphia
Minneapolis
Roanoke

Chicago
San Francisco
Jacksonville

BERLOY

Gilmer

There's a new

GILMER CATALOG

just off the press—which contains up-to-date specifications on Gilmer belts for the new makes of cars and for the new models of old makes.

It also tells about the new and improved Gilmer Super-Service Fan Belts and gives the details of our special offers to the Trade on minimum stocks with

STOCK AND DISPLAY CABINETS

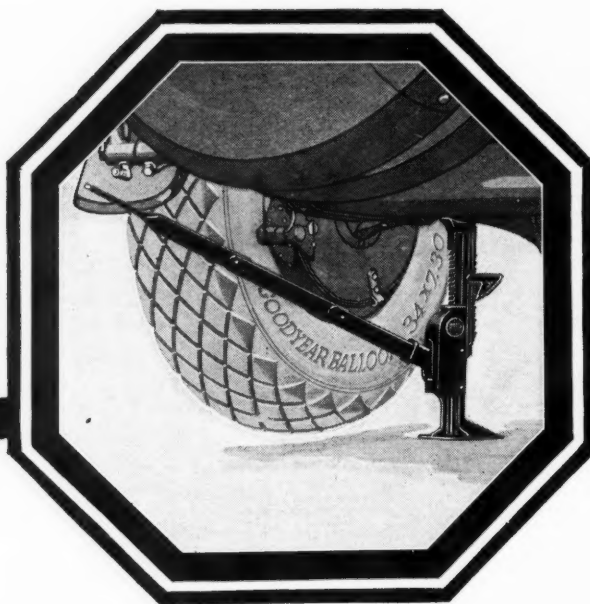
*Your copy of this catalog is
awaiting your request to be mailed*

L. H. GILMER CO.

Tacony
PHILADELPHIA, PA.



Cars equipped with balloon tires must have a jack that has a low initial lift and a maximum raise.

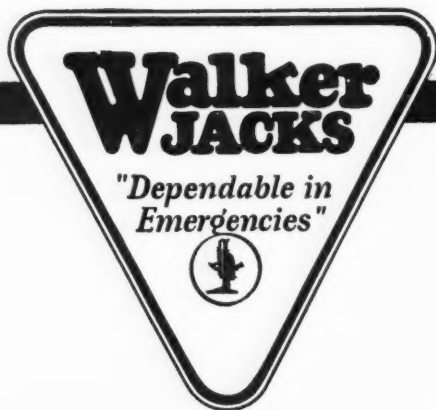


The Walker No. 126 long handle jack with foot lift will meet the requirements of cars with balloon tires.

If I could talk personally to any three customers that enter your store, I could sell at least one of the three a good Jack. No tool is more necessary to the car driver, yet no piece of equipment is more neglected. Give jack selling your attention and you will be surprised to find how few car owners have a good jack; you will also discover an opportunity for sales and profits you have heretofore overlooked.

Willard Walker

President.



WRITE FOR MINATURE CATALOG OF WALKER JACKS

Walker Manufacturing Co.

Racine, Wisconsin

Just Say, — “No More Turning Down of Dirty Grease Cups” —and They're Sold!



FULL



EMPTY

Note how cup is
extended when
full!

Just Screw a
CRITZ **ALEMITE** or **ZERK**
 fitting fitting fitting



“A Wedford Product
 Always Sells”

Just tell your customers that *Wedford-Critz Automatic Lubrication* ends turning down of dirty grease cups—and the sale is made! Dealers everywhere are profiting! It's a system of Automatic Grease Cups into which grease is forced under high pressure with *Wedford-Critz*, *Alemite* or *Zerk* lubricator. * * * The Cups, which extend when full, hold a reserve supply of grease, automatically forced over the bearing, under constant pressure. Feeds only when car is running. Cups show when to refill. Only after 750 to 1000 miles.

* * * Sell *Wedford-Critz*—

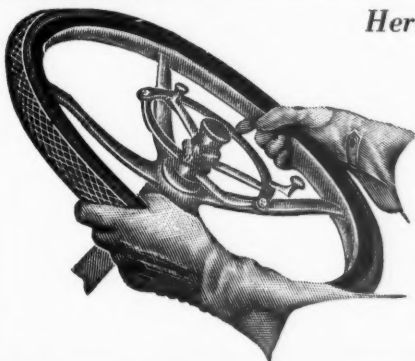
AUTOMATIC LUBRICATION

WEDFORD-CRITZ AUTOMATIC GREASE CUPS

for every car

Better car operation, longer life, easier riding, fewer repairs, and better, easier, cleaner and less frequent greasing, are the advantages *Wedford-Critz Automatic Grease Cups* give! Use with present high pressure lubricating systems! * * * Simply screw in Cups in place of *Wedford-Critz* Alemite or Zerk fittings now on the car, then screw fittings into tops of Cups. Try them on shackle and king bolts and you'll know they're needed on every chassis bearing. Sold by jobbers everywhere. Order now! Clever Counter Display, free, with order for six Cups or more.

THE WEDLER-SHUFORD COMPANY—ST. LOUIS, U. S. A.



Here's Another Wedford Product That Always Sells
 Wedford

Rid-Ged Grip

STEERING WHEEL TIRE

SELLS—because its many advantages appeal instantly to motorists—and it sells the year 'round. Keeps hands cooler in Summer, warmer in Winter. Ribbed surface. Provides a soft, cushion-like, positive grip for hands or gloves. Makes steering much safer and easier. Enhances the appearance of the wheel. Covers paint wear and stains. Protects from mechanic's grease. Made of new, live rubber. Fits all steering wheels. Now sold at almost every place where accessories are sold throughout America. Tell your jobber's salesman to supply you with Wedford “Rid-Ged Grip” Steering Wheel Tires.

Wedford

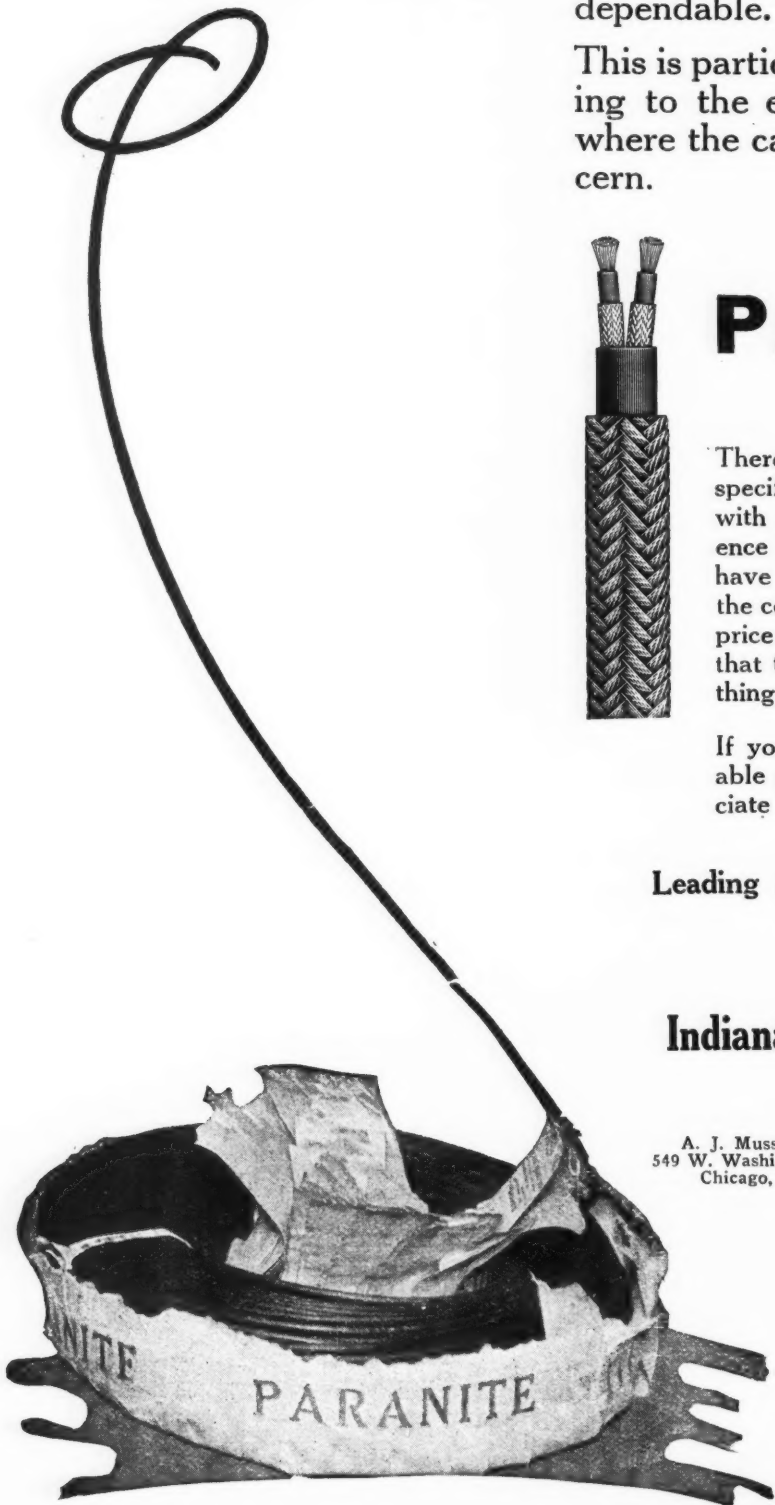
AUTOMOTIVE PRODUCTS



Good Electric Cable Costs Less

You know that it frequently costs less, in the long run, to use material which is absolutely dependable.

This is particularly true of everything pertaining to the electrical system of automobiles, where the cable used is a matter of **vital** concern.



IF IT'S

PARANITE

IT'S RIGHT



There is a PARANITE CABLE made specifically for each particular purpose, with more than thirty years of experience back of it. And service stations have found so little difference between the cost per job of PARANITE and the price of cable not nearly so well made that they rarely consider ordering anything else but PARANITE.

If you are interested in using dependable products, you, too, would appreciate PARANITE.



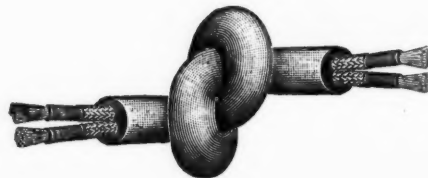
Leading Jobbers everywhere carry complete stocks.
Your Jobber can deliver it to you.

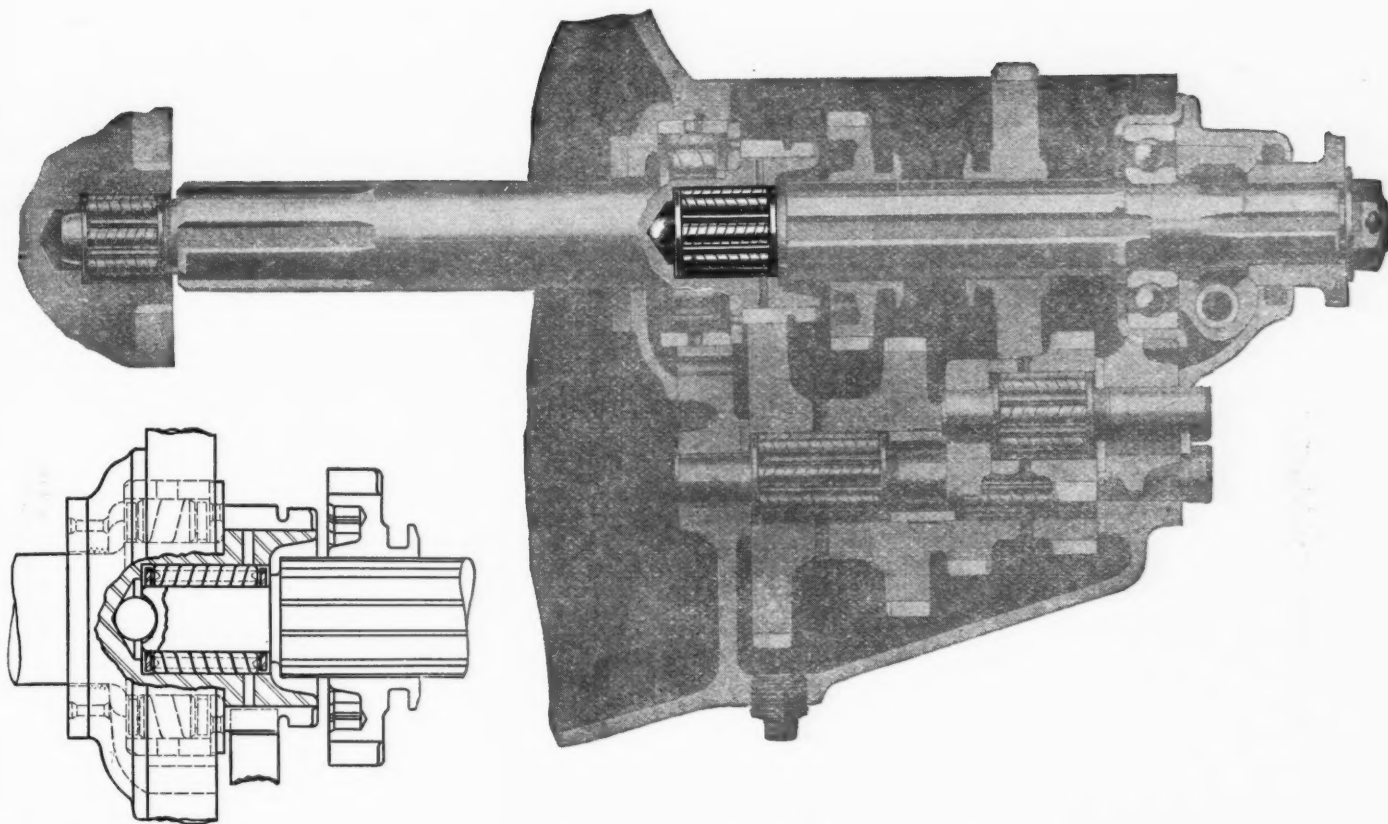
Indiana Rubber & Insulated Wire Co.

Jonesboro, Indiana

A. J. Musselman
549 W. Washington St.
Chicago, Ill.

Geo. R. Hall
West Hartford, Conn.





Higher Quality Transmissions at Low Cost

No. 2 *In the Pocket Position*

Hyatt bearings, with their durability and lubrication advantages, are ideal for the pocket position. Their use insures higher quality transmissions that will eliminate costly service charges.

Plain pocket bushings wear rapidly, rattle and have to be replaced. Hyatt bearings save this expense for their wear is negligible and they seldom, if ever, need to be replaced.

In renewing a plain pocket bushing, it is very essential that it be accurately reamed to size to receive the end of the main shaft. This is a difficult operation and few garages are equipped to do it. It must be carefully and skillfully done or wear and noise will develop rapidly. In the few cases where Hyatt bearings have to be renewed the installation is extremely simple.

The pocket position in a transmission is, of course, hard to lubricate at best. In cold weather, when the oil is stiff, plain bushings are often scored before the lubricant can begin to circulate. This causes premature wear, looseness and noise. Hyatt bearings, on the other hand, can operate temporarily without lubricant and be in no danger of wearing. They will continue to run just as quietly and efficiently after operating under such adverse conditions as they did before.

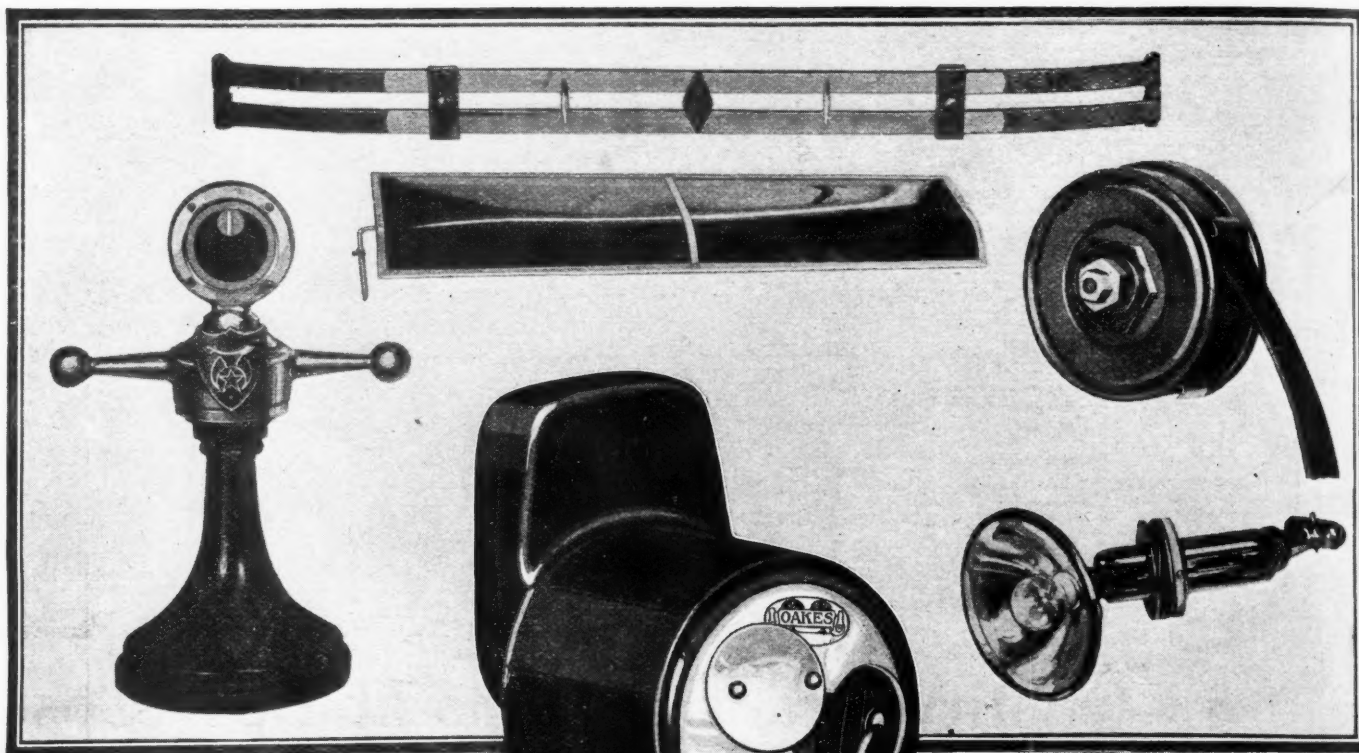
Hyatt bearings are carefree bearings. In the pocket position of a transmission they need no attention, but will continue to function quietly and with lasting satisfaction for years. Install them for dependable, quiet transmission performance.

HYATT ROLLER BEARING COMPANY
NEWARK DETROIT CHICAGO SAN FRANCISCO

MILWAUKEE WORCESTER CLEVELAND PITTSBURGH PHILADELPHIA

HYATT
Quiet
Roller Bearings

In the Fast Selling Accessory Group

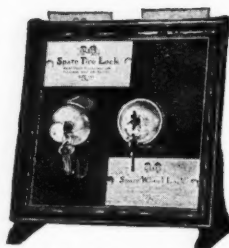


OAKES SPARE TIRE LOCK

OAKES LOCKS for Spare Tires and Spare Wheels are among the outstanding accessories used on good cars.

They are widely sold by thousands of aggressive car dealers and accessory dealers. And in addition OAKES LOCKS are standard equipment on a growing list of leading motor cars.

Keep up with the times! There's an OAKES LOCK for the car you sell. Put one on every car and get your share of these steady profits.




This Handsome display stand sent you free with every order for six or more locks.

OAKES SPARE WHEEL LOCK

OAKES LOCKS are just the thing to feature as Holiday gifts.

Each OAKES LOCK will be individually boxed with an attractive special Christmas wrapper over the regular package. Striking posters will be supplied for window and wall displays. Every cooperation will be given to help you sell an OAKES LOCK to every customer.

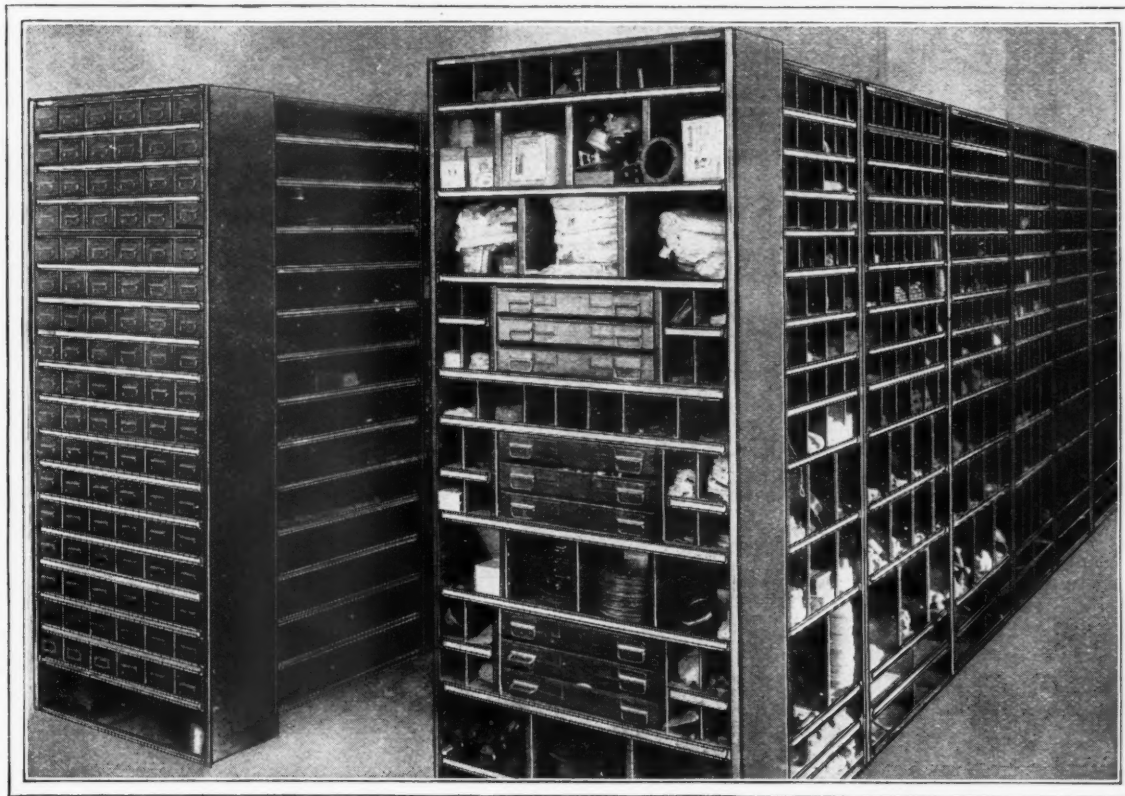
Prepare now for the Christmas season! Dealers: Write us at once if your jobber cannot supply you.

THE OAKES CO.  INDIANAPOLIS
Established 1910

Oakes Locks are Standard Equipment on 15 Makes of Cars

Manufacturers Radiator Cooling Fans, Spare Tire Carriers, Spare Tire and Spare Wheel Locks

LYON AUTO PARTS CONTROL



*Lyon Auto Parts Control System
in use by a Dodge Dealer*

Keep Your Parts Business at Your Finger Tips

With the Lyon System of Auto Parts Control, you always know exactly where you stand. Short stocks are easily noted. Inventory is simplified. Any wanted part is quickly produced. Your stock man is given more time for other work.

While providing "a place for everything," the Lyon System is also a floor space saver, giving

you more room for the showing of other profitable merchandise.

Attractive display is obtained for your auto parts, aiding sales by the neat, clean presentation that the Lyon System enables you to make.

Write us now, stating the makes and number of cars you service. We will send you complete information about the system built specially for you.

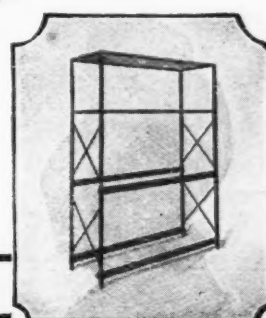
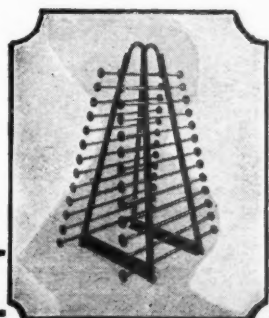
Lyon Metallic Manufacturing Company

Aurora / Illinois

Lyon Auto Parts Control Systems are sold by
leading Automotive Jobbers



for every storage need





Back in the Days When—

- they called them “horseless carriages,” and the joshers’ cry, “Get a horse!” sent the village into gales of laughter.
- motoring dress required goggles, a linen duster, leather gauntlets and a yacht cap!
- farmers shied rocks at any driver with the hardihood to venture outside the city limits.
- whip sockets were standard equipment on every dash.
- any motor trip over ten miles without a break-down caused as much comment as when John L. Sullivan quit drinking.
- Ford stock went begging in the streets of Detroit.

It is almost inconceivable that many of these incidents are fresh in the memory of men still young in an industry, which in 25 short years has revolutionized world economics, commerce and transportation, contributed materially to the winning of the greatest war history records, and literally taken the population of the United States off its feet and put it on wheels.

Under the editorial leadership of David Beecroft, and at the greatest editorial expense of any single issue of any business publication, much of this romance and history of the automotive industry will be collected and published for the first time between two covers in the

25th Anniversary Issue of THE AUTOMOBILE TRADE JOURNAL December (Last Forms Close Nov. 15th)

Not over 50,000 copies will be published. Handsomely bound in silver and blue. Advertising copy of historical and institutional character is especially recommended for this Issue. For detailed information on rates, advance orders for extra copies, etc., address Silver Anniversary Committee, Chilton Company, Chestnut and 56th Streets, Philadelphia, Pa.

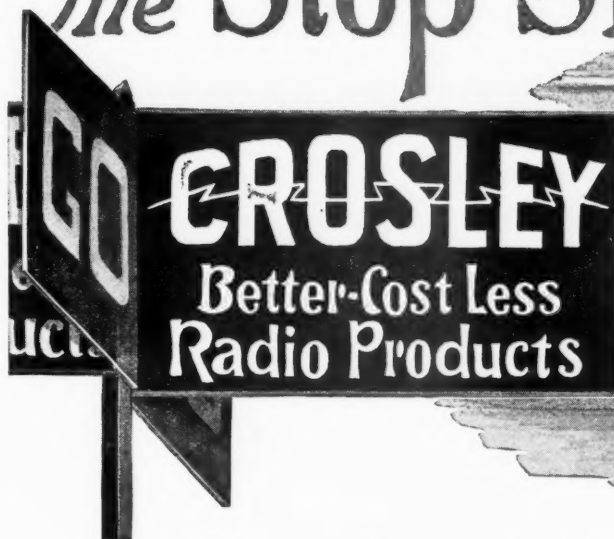
SILVER ANNIVERSARY COMMITTEE
Chilton Company, Chestnut and 56th Streets, Philadelphia, Pa.

1899



1924

The Stop Signal for the Radio Prospect



Millions Know Crosley

The name Crosley in your window or hung from your store is the stop signal for more radio prospects than any other name you might display. It is a guarantee to the public that you offer in radio receivers the greatest efficiency at the lowest cost.

It is quantity production that has enabled Crosley to build the best of radio receivers at such remarkably low prices. And, it is the efficiency of the instruments themselves, coupled with a great amount of national advertising, that has made the Crosley franchise so valuable to any Automotive Dealer.

If you want to keep up with the fast moving radio procession, display the name Crosley and Crosley Radio Receivers.

They Will Pay You Big Dividends

Good Jobbers Everywhere Handle Crosley Receivers

Write For Free Catalog

THE CROSLEY RADIO CORPORATION

Powel Crosley, Jr., President

9533 Alfred St.

Cincinnati, Ohio

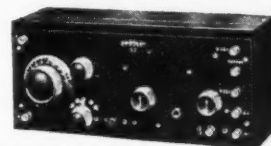
*All Crosley regenerative sets are licensed under Armstrong U. S. Pat. 1,113,149.
Prices West of Rockies—add 10%.*

Crosley owns and operates Broadcasting Station WLW.

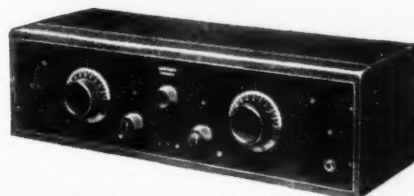


Crosley Model 50,
Price \$14.50
With one tube and
Crosley Head Phones \$22.25

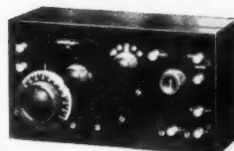
Crosley Model 50-P, Price \$18.00
With one tube and Crosley Head Phones \$25.75



Crosley Model 52, Price \$30.00
With three tubes and Crosley Head Phones \$45.75



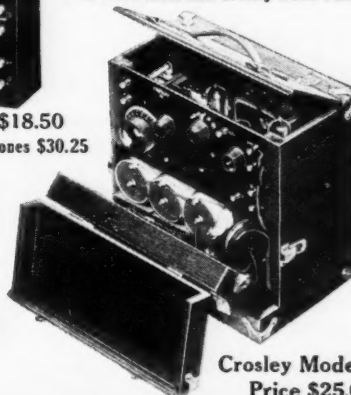
Crosley Trirdyn Regular, Price \$65.00
With three tubes and Crosley Head Phones \$80.75



Crosley Model 51, Price \$18.50
With two tubes and Crosley Head Phones \$30.25



Crosley Trirdyn Special, Price \$75.00
With three tubes and Crosley Head Phones \$90.75



Crosley Model 51-P,
Price \$25.00
With two tubes and Crosley Head Phones \$36.75





"We Use Key Graphite Paste In Many Places On A Car To Perfect the Job"

There are fifteen major places on a car where KEY GRAPHITE PASTE is used to great advantage as well as on every bolt thread, plug thread and rust spot.

Multiply this by the FIFTEEN MILLION cars in service and you have the market for this serviceable product.

KEY GRAPHITE PASTE now has a tremendous sale but the surface is merely scratched. The entire trade will benefit thru its sale and use.

A Few of Its USES

Seals all gaskets and screw thread connections.
Prevents sulphate corrosion on battery terminals.
Makes leak-proof hose connections.
On Spark Plug threads.
On felt washers.
On rusted tire rims.
Manifold paint.
Bolt threads.
Spring Lubricant.
Jobbers and Distributors are urged to write for merchandising plan.



We pay the postage on free samples

KEY BOILER EQUIPMENT CO.

27th and McCasland Ave., East St. Louis, Ill.

MA 9-18

Key Boiler Equipment Co.

27th and McCasland Ave., East St. Louis, Ill.

Please send me without charge or obligation a sample of Key Graphite Paste.

Name

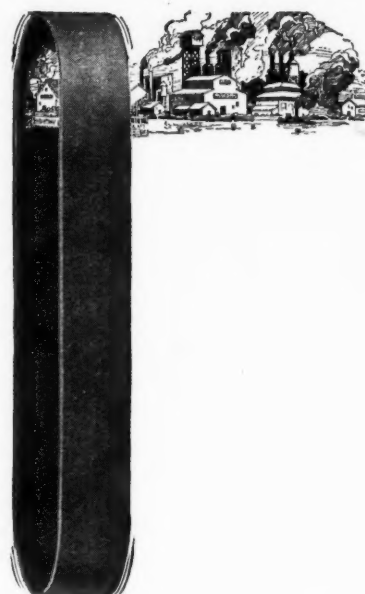
Business

Address

Jobber's Name



The third most important replacement part



FAN belts are the third most important replacement part in the automobile industry. Are you getting your share of this business?

To realize the most from this third most important part, sell Graton & Knight Fan Belts. They are better belts to handle for two reasons:

First—*profit*. Priced right to make you a good margin. Backed by a square proposition that discourages price cutting. Easy to sell because the quality is known.

Second—*satisfaction for your customers*. Made of famous Graton & Knight Standardized Leather, Graton & Knight Fan Belts resist motor heat, oil and water. They run straight and true. Cling to the pulley at low tension—so save bearings. Keep their shape. Do not require frequent tightening. Stand up under the hardest usage.

Graton & Knight Fan Belts are made in Flat, "V," and Link "V," types. Standardized for every pleasure car or truck. They will increase your fan belt business. Write to your jobber to-day for prices and full information.

THE GRATON & KNIGHT MFG. CO.

*Tanners—Makers of Belts and Other Leather Products
Worcester, Mass.*



GRATON & KNIGHT

Standardized
LEATHER BELTING

Commencing This Issue

The article in this issue is on the subject of "Profit the Motive of all Business" and deals with basic principles.

The title of the article to appear next week is "A New Business But Old Principles". It will be as interesting as it sounds."

Succeeding articles will be on these topics:

Where Profits Came From
How to Determine Mark-Up for Profit
Meeting Competition that Cuts the Percentage

*a series of highly
interesting and infor-
mative articles on*

Profit vs Volume

Articles on this subject will appear simultaneously in Automotive Industries, Motor World and Motor Age and in the October issue of Automobile Trade Journal.

While the general theme in each publication will be the same, the subjects, the treatment and the writers will be different. All, however, will be exceptionally interesting, reflecting various viewpoints.

This series is the first of several dealing with various phases of the important subject of Profits. An article will appear in each issue of this publication. Look for it—it will be worth reading.

Non-Korod

EVERY BATTERY NEEDS IT!



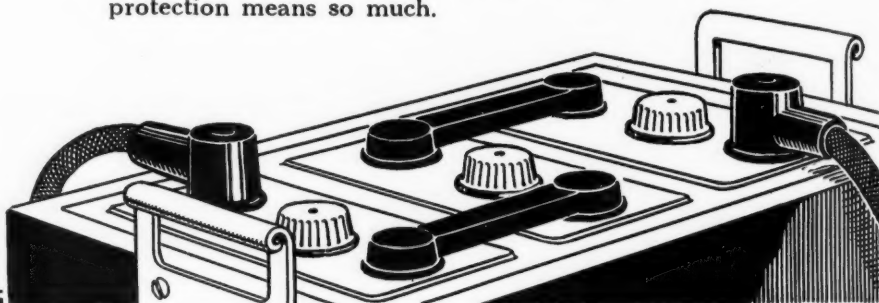
Display case of 12 cans (each can with a brush) — a steady - working salesman for this essential product.

One of the most essential articles in motordom. The majority of batteries will corrode or sulphate. This battery deterioration, if prevented, means a great saving in battery life and upkeep—insuring full service.

NON-KOROD is a scientific preparation made for battery terminal protection.

Urge its use instead of make-shifts where protection means so much.

Dealers, Jobbers, Service Stations,
Batterymen—are urged to write for
literature and prices.
National Cable Compound Co.
INC.
Mitchell, Indiana



Broadcaster Service

If you are in the market for something that you do not find advertised in this paper, tell us and we will promptly send you a list of the leading manufacturers.

If you want anything, and do not know how to get it or to whom to send your inquiry, write us and we will do our best to help you.

For complete Broadcaster Rates in Motor Age, Motor World, Automobile Trade Journal, Automotive Industries, Distribution & Warehousing, address the Class Journal Company, 5 South Wabash Ave., Chicago, 239 West 39th St., New York, or Chestnut and 56th Streets, Philadelphia.

The Broadcaster
A DEPARTMENT THAT
WILL FIND WHAT YOU WANT

The Broadcaster Department Appears in This Issue on Pages 112-113.

The Federal Authorized Sales Agency Sign—nationally advertised for years—is the public's identification of every Federal dealer.



The Confidence Motorists Have in This Sign Means Money to You

Millions of motorists have learned through Federal national advertising, that they can thoroughly rely on the dealer displaying the Federal Authorized Sales Agency Sign for a square deal in quality, price and service.

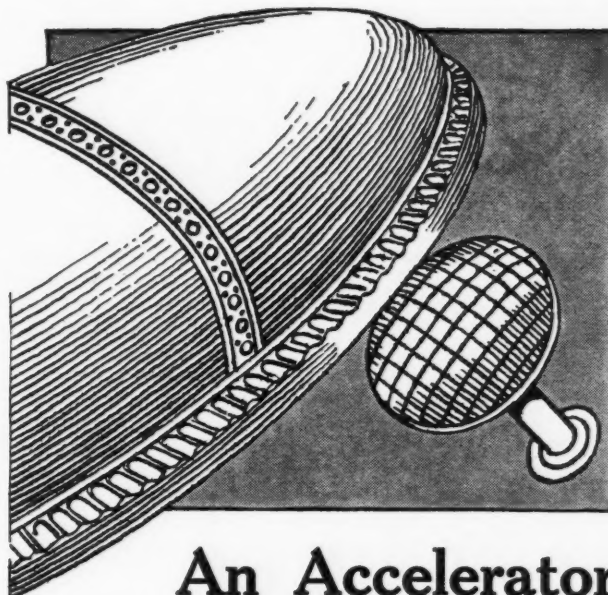
The fact that Federals have been serving motorists well for over 20 years is another reason why the Federal Blue Pennant Cords are easy to sell.

The Federal Authorized Sales Agency Plan offers you extra large profits with other unusual features.

What better assurance of good business and good profits can any dealer have?

These advantages make the Federal Authorized Sales Agency proposition one of the most desirable and satisfactory available today.

Information regarding the Federal Authorized Sales Agency Plan will gladly be sent any interested dealer.



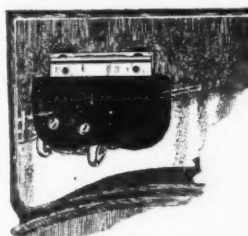
An Accelerator for Fords

Leaves the owner's hands free for steering. No fiddling for the throttle. With the Welco Ford Accelerator Pedal, gas control is always right under his toe.

Finished in full nickel plate, with foot rest, this attractive, well-made accelerator has found a good market everywhere. He can put it on himself, in ten minutes.

And an attractive counter **PRICE**
display helps your selling. **\$1.50**

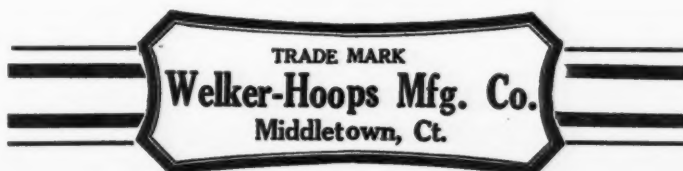
Welco Glare-Shield



PRICE
\$1.00

Takes the danger out of the most glaring headlights and the annoyance out of sun-dazzle. Put it on his car. Let him see how helpful it is to the driver of a car. Any man is a prospect for this glare protection. No installation problem. Vacuum cups hold it on the windshield. Spring arrangement holds it at any angle. Green visor of genuine Viscoloid.

Ask Your Jobber's Salesman!



GF Allsteel

The Complete Line of Office Equipment

Steel Shelving

Strength—Modern steel construction combines strength with light weight.

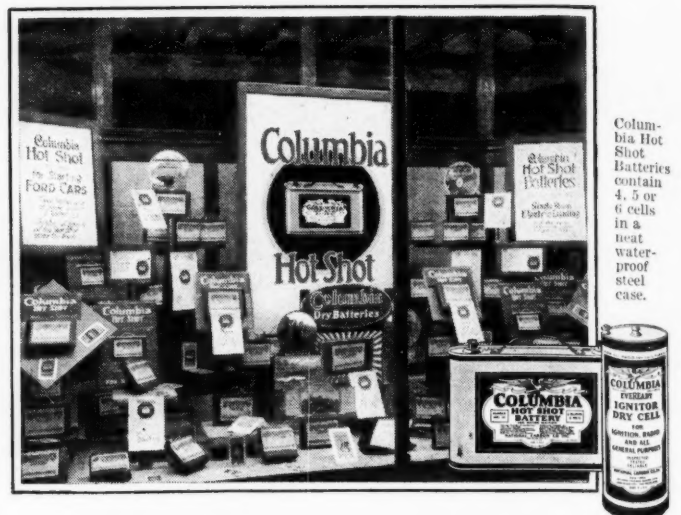
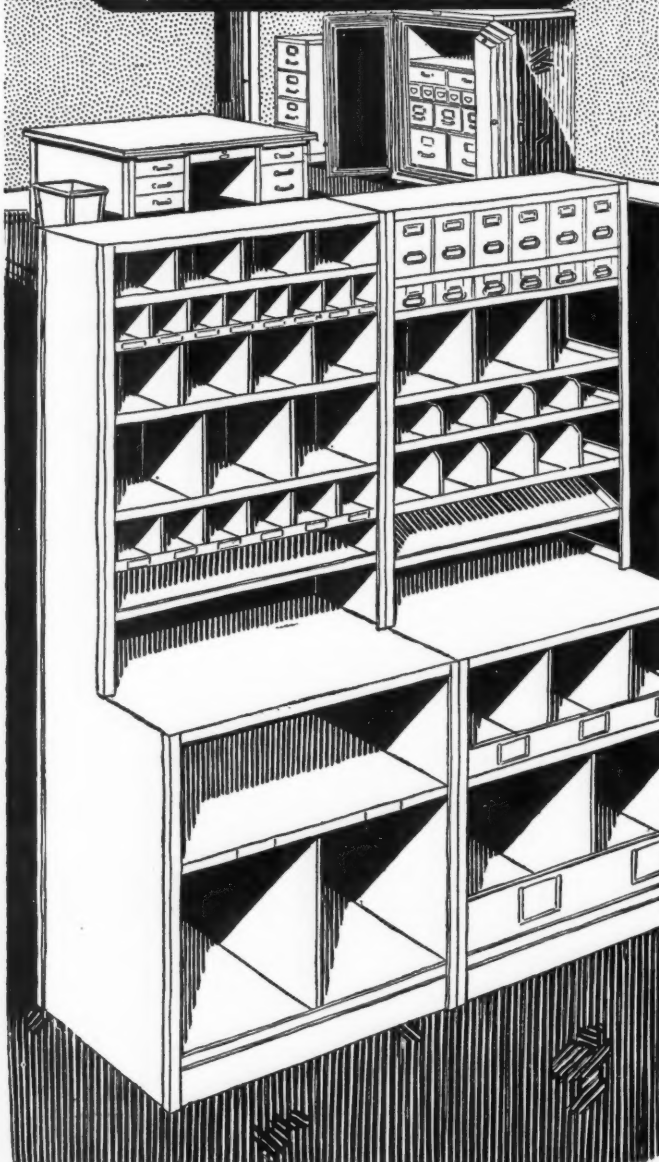
Durability—Fire-resistive—oil, water and wear proof.

Simplicity—Installed or rearranged easily and quickly, with ordinary tools.

Adaptability—Arranged to store any commodity.

Economical—10% to 30% greater storage capacity. Moved or altered without depreciation.

Shelving, Files, Desks, Transfer Cases, Safes, Counter-heights, Sectional Cases, Accessories and Supplies
THE GENERAL FIREPROOFING CO.
 Youngstown, O. *Dealers Everywhere*



Put your window on the job

Summer is over! People are flocking back from vacations. Homes are being reconditioned for winter. It is open season for overhauling bells and buzzers and equipping them with new batteries.

Right now is the time to put in a Columbia Eveready Battery window display. Make it an all-battery window. Concentrate the idea. Fill your window full of Columbias. Put in window cards suggesting new Columbia Eveready Batteries for bells, buzzers, burglar alarms, ignition and radio. The above shows how the Warner Hardware Company, of Minneapolis, registered a knockout.

We have prepared a wonderful line of display material. A postal card to us will bring you a generous supply. But first of all, be sure you are well supplied with Columbias. If your stock is low, get an order in to your jobber marked "For Immediate Delivery."

Manufactured and guaranteed by

NATIONAL CARBON CO., Inc.

New York — San Francisco

Canadian National Carbon Co., Limited, Toronto, Ont.

Columbia

EVEREADY

Dry Batteries

—they last longer

Leaders Of a Leading Line

The scientific durable construction of Rie Nie Fan Belts has proven them to be the longest wearing, most serviceable fan belt on the market.

The remarkable strength and sturdiness of Rie Nie Fan Belts eliminates the possibility of costly delay in an overheated engine with the resulting damage.

On dealers' shelves, Rie Nie Fan Belts have built a solid road of sales success through years of rugged service. They are preferred for their increased sales results from a smaller stock that fills all fan belt calls.

The soft rubber compound core of Rie Nie Vee Round Fan Belts automatically flattens the belt to a true V shape that presents the maximum gripping surface to the pulley sides.

Rie Nie Flat Type Fan Belts are built like a fine auto tire, ply upon ply of sturdy tough fabric, impregnated with a heat and wear-proof compound and sealed in its special Rie Nie Jacket that resists all oil, grease and dirt.

Like Rie Nie Fan Belts, the other Rie Nie Products have won their way into the hearts of motorists and dealers. There are thirty-nine numbers in the Rie Nie line, all manufactured of the finest materials and with the same exactness that marks the production of Rie Nie Fan Belts.



Rie Nie

Fan Belts

DURKEE-ATWOOD
MINNEAPOLIS, U.S.A. ©



**"That's
the Timer!"**

Fordowners by the thousand are repeating these magic words across their dealers' counters. They are words that mean sales and yet more sales.

A glance at

THE BELL TIMER

"Built like a High-grade Distributor"

shows why it is the preferred timer. Its precise construction, copper brush and contacts, *one-piece* Bakelite shell and raceway are strong arguments in its favor. In addition, it is a wipe-contact timer that needs no oiling.

For better timer sales, ask your jobber for BELL Timers. Write us direct if he doesn't carry them.

Bell Manufacturing Co.

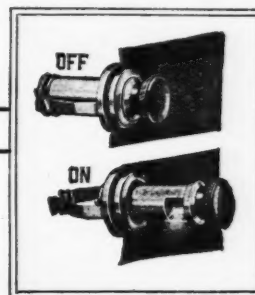
13 Elkins St.

Boston 27, Mass.

Makers of the unique

BELL DASH LAMP

for Fords and other cars. Out of the way when not in use. Ask about it.





Chases Trouble!

No more con-rod grief. Watkins rebuilds them like new with new bearings tinned in and broached to mirror-like finish, new nuts, bolts, laminated shims, and piston pin bushings, if used. One Day Service, too.

Make a profit out of those old con-rods. Watkins rebuild rods fit quick to the crank-shaft. Regrinders don't lose crank-shaft grinding business because standard size bearings won't fit new sizes of the shaft. A Watkins Plant will machine bearings to special undersizes when furnished.

WATKINS
Complete REBABBITTING
SERVICE

Send Parts to Factory Nearest You

CHICAGO, ILL.
Berguson-Skinner Corp.,
57-61 E. 24th St.

HARTFORD, CONN.
Ripley Motor Services,
Inc.
28 High St.

INDIANAPOLIS, IND.
Indiana-Watkins Mfg. Co.
19-29 West South St.

KINGSTON, ONT.
Watkins Mfg. Co., of
Canada, Ltd.

LOS ANGELES, CALIF.
Wright Mfg. Co.
1007 E. Ninth St.

MEMPHIS, TENN.
J. B. Cook Auto Machine
Co.
278 Washington Ave.

NEW YORK, N. Y.
Lake Sales Company
27-37 W. 60th St.

OMAHA, NEBR.
Interstate Machinery &
Supply Co.
1006-10 Douglas St.

(Authorized exclusively by Buick Motor Company to
Rebabbit and Rebuild Buick Rods).

PORTLAND, ORE.
Factory Motor Car Co.
14th & Everett Sts.

ST. LOUIS, MO.
H. & H. Machine Co.
4216 Easton Ave.

SEATTLE, WASH.
Solon Grinding Co.

SYRACUSE, N. Y.
Watkins Manufacturing
Co. of New York
201-211 Wyoming St.

TOLEDO, OHIO
Stewart-Burgan Co.
1942 Putnam St.

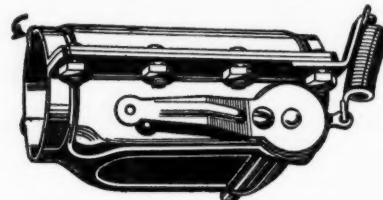
WASHINGTON, D. C.
R-L Motive Parts, Inc.
1628 L. St., N. W.

WATERLOO, IA.
All States Rebabbitting
Service

WICHITA, KANS.
Watkins Manufacturing
Co.,
Home Office

Climax
MUFFLER CUT-OUT
PRESSED STEEL

is the *unbreakable*
motor testing valve



Chevrolet
Special
\$4.00
complete

Other sizes
in
proportion

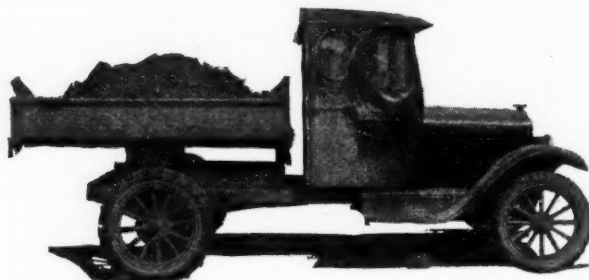
You need only 4 sizes
to fit 92% of all cars

Order from Your Jobber for Immediate
Delivery

INFORMATION UPON REQUEST

Climax Equipment Co.

1827 San Fernando Road Los Angeles, Calif.



More money in
hauling and
dumping for
your Ford or
Chevrolet
prospects

SAFTEE
Automatic
DUMP
BODIES
Model TA for
Ford Chassis
and Model AA
for Chevrolet

Turn your chassis sales into truck sales and make an added profit. Meet the demand for efficient, inexpensive hauling on Ford and Chevrolet chassis. The Saftee Dump Body makes new prospects for your chassis among contractors and others who require quick, economical automatic dump bodies. Saftee—the one gravity dump body that does not rack the chassis with destructive jolting, either on the dump, on the return or on the road.

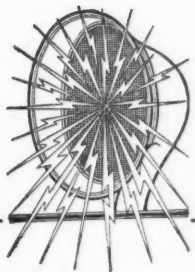
Made of sheet steel, welded and strongly reinforced. Simple to install—four "U" bolts hold it firmly in place. Tail gate works automatically and allows an 18 inch clearance.

Body capacity, level full, 27 cubic feet. Provision for side boards to increase the capacity.

Write now for details and discounts. Our distributing plan gives you prompt service direct from the factory.

The Ditwiler Mfg. Co.
Galion, Ohio

Manufacturers also of Hand Operated
Dump Bodies



Broadcaster Service

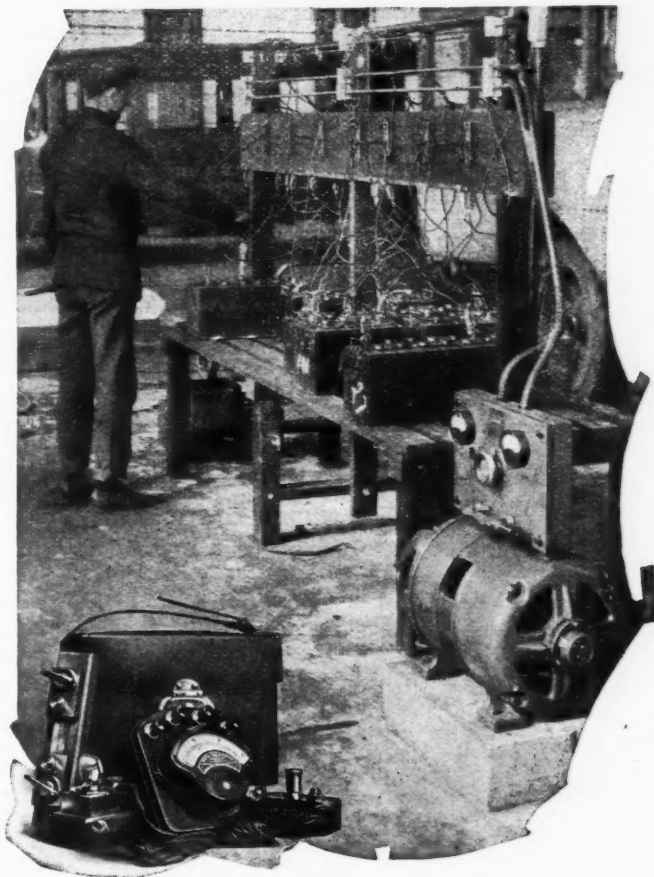
IF you are in the market for something that you do not find advertised in this paper, tell us and we will promptly send you a list of the leading manufacturers.

If you want anything, and do not know how to get it or to whom to send your inquiry, write us and we will do our best to help you.

For Broadcaster rates in Motor Age, Motor World, Automotive Industries, Automobile Trade Journal, Distribution & Warehousing, address the Class Journal Company, 5 So. Wabash Ave., Chicago, Ill., 239 W. 39th St., New York City, or Chestnut and 56th Street, Philadelphia.

The Broadcaster
A DEPARTMENT THAT
WILL FIND WHAT YOU WANT

The Broadcaster Department Appears in This Issue on Pages 112-113.



Weston Garage Set — Good for Any Test Required

A miniature precision voltmeter having six ranges, 30, 3 volts, 100 milli-volts and 300, 30 and 3 amperes. Invaluable in locating shorts, grounds, open circuits in starting motor, generator wiring or auxiliaries. Gives rate of battery charge. Tests condition of batteries. Locates defective plates. Measures current required for starting motor, lights, etc. Cadmium test cables also supplied, if desired.

Send for Booklet H. It illustrates, describes and gives prices of Weston Instruments and accessories for automotive service.

Weston Electrical Instrument Co.

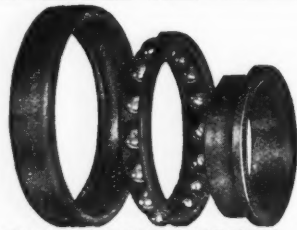
10 Weston Avenue

Newark, N. J.

BRANCH OFFICES IN ALL PRINCIPAL CITIES

WESTON
Electrical Indicating Instrument Authorities Since 1888

STANDARD - The World Over



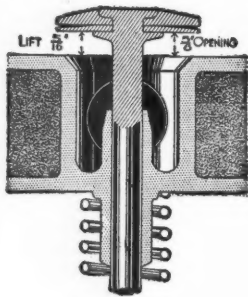
ANGULAR CONTACT THRUST BEARINGS.
ANGULAR CONTACT RADIAL BEARINGS.
These Bearings furnished to your requirements.
Send us your blue prints and inquiries.

The Bearings Company of America
Lancaster, Penna.

Western Sales Office,
1012 Ford Bldg.,
Detroit, Mich.

BOYLE VALVES

Nevergrind, Silent



Improve with use and make a good motor better. Installed in less time than re-grinding ordinary valves. They save their cost in one re-grinding period. Made for all poppet valve motors.

Liberal discount means a big profit to you.

Write for full particulars.

BOYLE VALVE CO.
5821-23-25 S. Ada St.
Chicago, Ill.

MORE POWER

For Ford Cars and Trucks

26 to 1 in low in our new type "CT"



"It will pull like everything"

clutch. Foot brake on jackshaft outside of case. Hyatt Roller and Genelite bearings. No cutting or machining—installation easy.

E. D. & A. F. CRONK, Inc., 140 Hotel St., Utica, N. Y.

Replaces the regular Ford Transmission SIMPLEX 3 SPEED

Sliding Gear Type

Have three speeds forward and one reverse, replacing the regular Ford transmission—drums, bands and all. The low speed is lower than the Ford, therefore, more power—the third is the same as the Ford and the second is half way between.

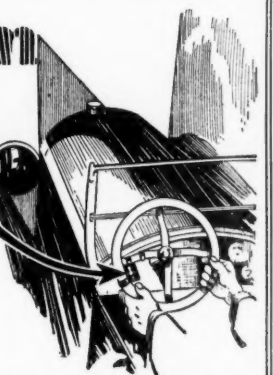
It's ruggedly built with oversize alloy steel gears. Multiple disc

Instandim

Neat and Convenient

An Instant Late May Be Disastrous

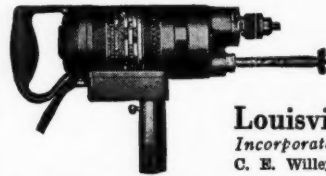
Fumbling for the dimmer switch is a source of much annoyance and DANGER. Save those precious seconds with INSTANDIM on the steering wheel. This new toggle type switch controls the lights at a touch of the finger INSTANTLY. Style "A" for headlights, \$2.25. Style "B" for headlights and spotlight, \$4.25. Easy installation. Good profits. Write.



H & H MFG. CO.
BUCYRUS, OHIO

Get This "Pioneer" \$65 Garage Special

Electric Drill and Valve Grinder



Greatest time and money saver, as well as money maker, for your shop—

"It Will Do The Work"

Louisville Electric Mfg. Co.
Incorporated Louisville, Ky., U. S. A.
C. E. Willey, Pres. J. B. McFerran, Secy.-Treas.

SPECIALISTS In Armature Rewinding

Workmanship, Service and price Guaranteed.



\$1.50 for Ford Generators.
\$3.25 other makes.

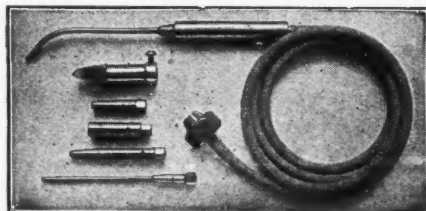
Once a customer always a customer. Try us and be convinced.

Get our complete price list. Write for it today.

PIONEER ARMATURE CO., Inc.
2805 Cottage Grove Ave. Chicago, Ill.

THE BEST TOOL IN THE SHOP!

Every garage needs one



Handy for the small jobs

Every purchaser of TORIT ACETYLENE TORCH No. 13 says it beats anything they ever saw. We guarantee it. USES NOTHING BUT ACETYLENE. Simply connect to Presto tank, light gas, and the outfit is put to work.

Complete as above, with connection for Presto auto tank, and full instructions.

\$7.50 in U. S. A.

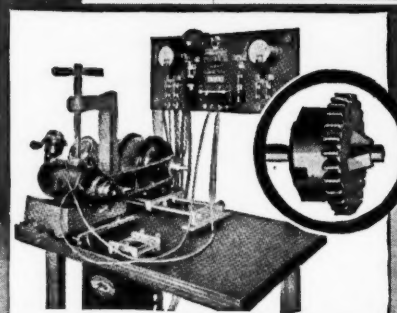
\$10.00 in Canada

Order from your Jobber's salesman, or

ST. PAUL WELDING & MFG. CO., 169 W. Third St., St. Paul, Minn.

EXCELSIOR TEST BENCH

With the Positive Drive and Speed Control



INCREASE YOUR PROFITS!

Starting, lighting and ignition pays bigger profits than any other branch of automotive service.

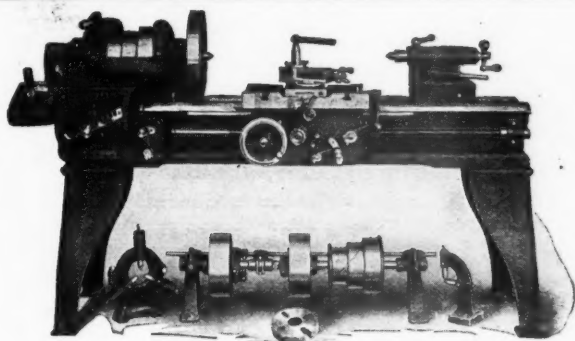
The Excelsior Test Bench

equips your shop complete for this work.

Price \$385.00

Payable \$50 per month
Write for bulletin 975M

WEIDENHOFF 4350 ROOSEVELT ROAD CHICAGO, ILL., U. S. A.



Now Is the Time

to select that Carroll-Jamieson Garage Lathe, built especially for service station use. The product of lathe specialists for more than 20 years. Nothing cheap, nothing freakish. Everything works. Guaranteed accurate within .001 in. to 12 inches.

Three Models, 12 in. and 16 in., 5 ft. to 12 ft. lengths of bed. Quick-change, gears, automatic cross-feed and longitudinal feed. And think of it—prices begin at \$330.00. Don't struggle along without a lathe, when you can buy one for so little.

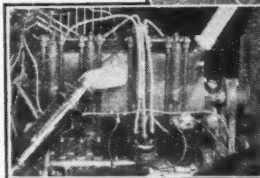
Get our descriptive matter and discount sheets before placing order elsewhere

Carroll-Jamieson Machine Tool Co.

Batavia,



Ohio



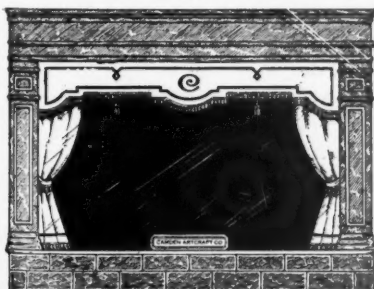
Cover those Vital working Parts

A great buy for Chevrolet owners. Protects the vital working of push rods, rocker arms and valves from grit and wear. Oil saturated felt lining insures constant lubrication. Silences motor noises. This Red Cat Cover has proven a popular seller all over the country. There's money in it for you. Order from your jobber or write G. A. Roth Mfg. Co., Hastings, Nebr., for complete details.

Red Cat Valve and Push Rod Cover for Chevrolet Cars

IMPROVE YOUR WINDOW DISPLAY WITH CAMDEN ARTCRAFT

Window Valances



They create attention—talk for you—add character—carry your name or slogan—and last for years. Complete cost is often less than a common painted sign. Tailored Valances per foot \$1.50 up. Linnette Valances per foot 90c up. Designs and estimates without obligation.

CAMDEN ARTCRAFT CO.

160 N. Wells St., Chicago

USE A STORM HONE

It handles an important part of your cylinder work. Takes all sizes of cylinders from 2 3/4 to 8". The deep, heavy, wide faced stones on the Storm Hone mean longer life, faster cutting and smoother finishing as well as freedom from chatter and stone breakage. Complete and with extra equipment only \$40.25.

Write for the Storm Book, "Modern Cylinder Methods"

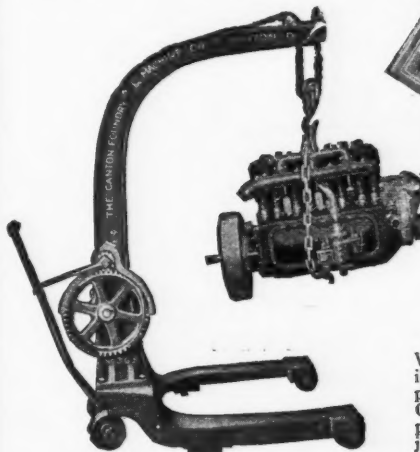
STORM Mfg. Co.

406 A Sixth Ave. So.
Minneapolis

Minn.

Every day you are losing profit

Those lifting jobs that call men away from their assignment are wasters.



One man with a Canton Crane can lift more in less time than five men without one. And there are a score of other jobs, mechanics have found, where the Canton is handy and time-saving.

Write for the booklet MA illustrated. It is a complete catalog of Canton Cranes giving sizes and prices. No obligation—just a line to—

The Canton Foundry & Machine Co.

Canton, Ohio

New York Office, 203 East 15th Street

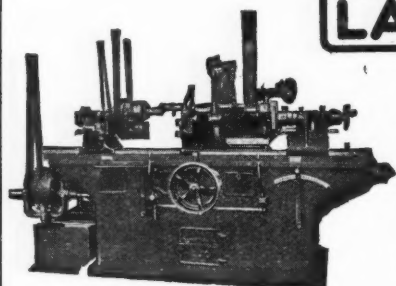
CANTON PORTABLE CRANE & HOIST



The BARRIER—A sturdy, safe bumper at \$9.00

Every New Era BETTER bumper, whether Ford Barrier at \$9 or Rolls-Royce Sport Duplex at \$24, is made of the same superior steel and finished in the same fine way. When finer are made New Era will do it.

NEW ERA SPRING & SPECIALTY CO., GRAND RAPIDS, MICH.



LANDIS

The LANDIS 4-A Special GARAGE Grinding Machine is built ESPECIALLY for repair shop work. You don't need a manufacturing machine—don't get one. The 4-A Special is perfect for repair shops. Quick and easy change from job to job. Simple to operate. AC-CURATA Built by world's largest makers of grinding machines. More value for your money. Catalog.

Landis Tool Co., Waynesboro, Pa.

New York Office—30 Church St.

free
write for
your copy

The Book
"AIR PROFITS"
Shows how to get
more work out of
an air compressor.
How to use com-
pressed air for
many pay jobs.

BRUNNER MFG. CO.
UTICA NEW YORK

BRUNNER
AIR COMPRESSORS

\$200
Retail

Life Timer
for Fords

Needs no oil. Short proof. Fool proof. Wipes a perfect contact regardless of wobble in the shaft. Bakelite Commutator is reversible, giving 2 timers for the price of one. Sold through the jobber. Write for folder and discount.

Mechanical Production Co.

MILWAUKEE, WIS., U. S. A.



USE THE AMMCO

Cylinder Re-Conditioning Tool

Regrinds and refinishes cylinder bores. It is self-adjusting, self-aligning and self-centering. Write for Bulletin.

Automotive Maintenance Machinery Company

551 W. Washington St.

Chicago

FYRAC
Night GUIDE
the Super Spotlight

FITS THROUGH THE WINDSHIELD GLASS

Fyrac Mfg. Co.
Rockford, Ill.

TAKE THE END-PLAY OUT!

—WITHOUT PULLING THE MOTOR



THE C. A. ADJUSTABLE CENTER BEARING CAP corrects Ford crankshaft end play and sets magneto for highest efficiency without removing the motor. Easily and quickly installed. Guaranteed for one year. List price \$3.75. Ask your jobber or dealer or write us direct.

Pat'd 7-22-'22

ADJUSTABLE BEARING CO., Inc.
Dept. M. Brazil, Indiana

2WAY
HYDRAULIC
SHOCK
ABSORBERS

Controls the springs both ways—up or down. The greater the shock the greater the hydraulic force—a smooth, even force that absorbs all shocks. The 2-Way gives great and lasting satisfaction. Owners are Boosters. Our franchise will make you money. Write for particulars.

AUTO SPRING CONTROL CO.
Jamestown, N. Y.

Kawneer
SOLID COPPER
STORE FRONTS

Write for Special Book Garage Fronts

THE KAWNEER CO., 1219 Front St., Niles, Mich.

Meachem
Gear Rings
for Fly Wheels

Quality rings at lowest prices. Get our list.

MEACHEM GEAR CORPORATION
Syracuse, N. Y.

ROSE TIRE PUMP

Is carried by more dealers than any other tire pump. The patent valve makes pumping easy.

FRANK ROSE MFG. CO., HASTINGS, NEBR.

Do You Want to Sell Your Business?
Do You Want to Buy a Business?

Every issue of this paper contains Business Opportunity ads that are real honest-to-goodness OPPORTUNITIES.

Read the Broadcaster ads in this issue. Opportunity may be pounding at your door. OPEN THE DOOR!

Read Broadcaster ads in every issue of your business paper.

The Broadcaster Department Appears in This Issue on Pages 112-113.

Send U. S. Your Armature Repair Work

FORD
ARMATURES
REWOUND
\$2.00



MOST ANY
TWO UNIT
GENERATOR
ARMATURE
\$5.00

ALL WORK GUARANTEED—WRITE FOR PRICE LIST
U. S. AUTO SUPPLY CO., 3845-49 S. WABASH AVE., CHICAGO



Curtis Pneumatic Machinery Co.

1527 Kienlen Ave.
St. Louis, Mo.

Show 'Em!

In the window! on the counter! at the pump—is an excellent place! Show Tasco Gauges—little talk needed to sell 'em. Obviously the greatest convenience. \$1.25 will buy. Replace old gas tank cap—gauge always accurate—working parts enclosed. Cuts eight moves to two in measuring gas in Ford—install Tasco then—"Lift the seat and Look!" Liberal discounts. Write.

\$1.25

RETAIL
PRICE

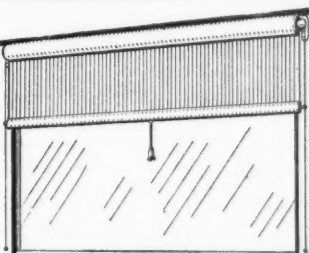
THE AKRON-SELLE CO., AKRON, O.
"40 Years in Business"

TASCO GAS GAUGES
Ford and Chevrolet



SHADES

that will help sell your car by adding to the appearance and comfort. Dealers who equip their cars with accessories have never had a request to remove the shades.



SHADES

made of fine quality silk hemmed with two rows of stitching both sides. Mounted on an all-metal roller complete with nickel plated brackets, cords and fasteners.

For Hudson and Essex Coaches, Ford Tudor, Maxwell and Hupmobile Club Sedans

We allow a liberal discount on single shades or on sets of one rear and two sides. Simply give us the name, model, year of car and the exact glass measurements. Giving us your

probable monthly requirements will place you under no obligation but will assure you of delivery when you need them. Write today for particulars and samples.

Chas. W. Rice & Co.

319 East Third St.

Uhrichsville, Ohio



There Simply Isn't Any Better Flux Made Than Rubyfluid!

A complete substitute for dangerous acids, Zinc Chloride, Sal ammoniac and other mixtures commonly used as a Flux. Ruby Fluid is quick acting, anti-rusting and is always ready for instant use. Ruby users include the foremost industries of the country.

Send for generous Free Sample



Rubyfluid
TRADE MARK REG.

COMBINATION
SOLDERING AND TINNING FLUX

THE RUBY CHEMICAL CO.

68-70 McDowell St.

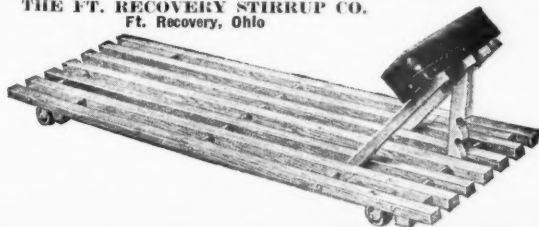
Columbus, O.

"Koch Kleepers"

Support the head in three different positions while working under the car. Eliminate body fatigue and neck cramps. Head rest is padded and can be adjusted to any position by slight pressure of hand while worker is on creeper under the car.

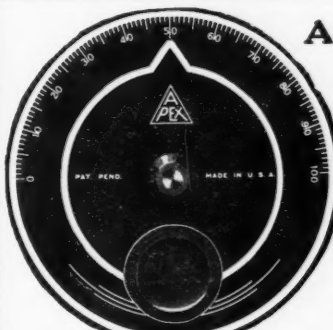
Sturdy and durable. Will last indefinitely. Write for complete details.

THE F.T. RECOVERY STIRRUP CO.
Ft. Recovery, Ohio



nitely. Wide wheel casters—ball bearing swivel.

Made in three grades. No. 3—13½ in wide by 40 in. long. No. 2 same as No. 3 except head rest is not adjustable. No. 1—36 in. long and a cheaper creeper but wonderful value for the money. Fine for car owner.



Apex Vernier Dial

Geared condensers requiring many holes in the panel and a careful lineup of pinion shafts are a waste of time and a bother. This marvelous instrument provides the fine adjustment for tuning in distant stations. The ratio is 10 to 1. It can be quickly applied to any shaft.

This Apex Vernier Dial is a product of the long and favorably known Apex Electric Manufacturing Company, who are producing it under the same exacting principles which have marked the great success of their Automotive products. Every accessory dealer should have a radio department. And no radio department is complete without the Apex Vernier Dial and other Apex Radio Products.

Automotive equipment dealers should write at once for complete information relative to this money-making item.

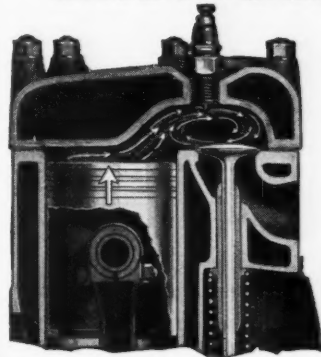
APEX ELECTRIC MFG. CO.,

1410 W. 59th St.,

Dept. 918

Chicago

The Ricardo Head



Mass response followed the announcement of four-wheel brakes and balloon tires. Now, the car-buying public looks for improved engine design—increased performance at lower cost and the new standards of ease and certainty the Ricardo Head provides. Thus, immeasurable sales value is added to the product that's "Ricardo Head-equipped."

WAUKESHA

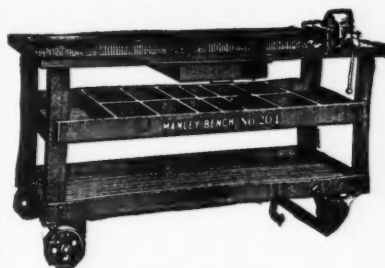
Motor Company

ENGINE BUILDERS

Waukesha, Wisconsin

New York, N. Y.

Get a Manley



PORTABLE WORK BENCH. In repair shops the stationary Benches are built along the wall, and are located at considerable distance from the car upon which work is being done. This necessitates many steps, consuming time and the energy of the workman, all of which is saved by placing the Manley Bench at the car. Manley Portable Work Benches are of a substantial construction, with hard wood top, steel drawer, shelf partitions, seasoned wood, roller bearing casters, and provision made for locking wheels. Made in two sizes.

MANLEY MFG. CO.

YORK, PA.

Jack—For Balloon Tires



Patent
Applied
For

The Springfield Jack No. 9 especially designed for balloon tires—

Double Screw—Ball Bearing Low Placement—High Lift Height when closed, 7 inches Extends to 17 inches.


Convenient handle excellent workmanship and quality.

Dealers—Jobbers—Write us for discounts

THE SHAWVER CO.

Springfield, Ohio

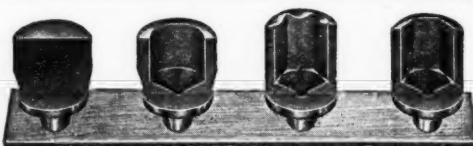
Weight 8 pounds
Capacity 1 ton
Price \$4.75



UNIVERSAL HOSE CLAMP

Adjustable. Two sizes will clamp any hose of any diameter. Made from cold rolled steel out of wire. No rough edges to cut hose. Put on in less than a minute. Everlastingly leak-proof. Order Universal Hose Clamps. Trademark on every clamp and carton. Get them from your jobber—or write us.

UNIVERSAL INDUSTRIAL CORP. Hackensack, N. J.



Cold-Drawn Sockets

ALLEN PROCESS MAKING A SOCKET


Allen Wrench Sets

The Allen Manufacturing Company, Hartford, Conn.

The MINUTE METER \$2.50

Greatest clock value ever offered the trade. Accurate—handsome. Protected against vibration. Regulated without dismantling dash. Great seller. Price in Canada \$3.50.

The LUX CLOCK MANUFACTURING CO., Inc.
Waterbury - Connecticut - U.S.A.



LINENDOLL EXHAUST HEATER




Attractive in appearance, with cleaning features of removable heating coil with no connecting joints inside the heater pan to leak. Meets instant approval. No odor or noise. Easily installed and operated. Will boost your winter sales—get our attractive trade proposition.

THE NORWALK AUTO PARTS CO.
Norwalk, Ohio

QUALITY—PROFIT—TURNOVER

American Hammered Piston Rings



American Hammered Piston Ring Company
Baltimore, Maryland

"It pays to buy a Kellogg"

KELLOGG COMPRESSORS

ROCHESTER, NEW YORK

Packard Cable

The Packard Electric Co.
Warren, Ohio



Watson Stabilators

They work

JOHN WARREN WATSON CO.
Phila.: 24th & Locust Streets
Detroit: 51-53 Canfield Ave., E.

Charm

The 100% Lubricants

Guaranteed not to cake or harden or to contain any Moisture, Mineral or Fatty Acids. Attractive proposition for Jobbers and Dealers.

RADIANT OIL CO., Inc.
Manufacturers and Compounders

Lima Ohio

JOHNSON Gas Appliances

Metal-Melting Soldering Heat-Treating

JOHNSON GAS APPLIANCE CO.
Cedar Rapids IOWA

Pacific Coast Repr., C. B. Babcock Co., San Francisco, Calif.
New York Office—277 Lafayette St.

ZENITH CARBURETOR

More Power Less Fuel

Zenith - Detroit Corporation, Detroit, Mich.

NO-LEAK-O PISTON RINGS

Won't Leak Because They're Sealed With Oil




No-Leak-O Piston Rings are making money for dealers everywhere. Their "oilSEALING" groove—found only in No-Leak-O—packs an oil film in between piston and cylinder walls like "packing" in a pump. Oil and gas stay where they belong. National advertising is helping the dealer sell No-Leak-O.

It will pay you to stock No-Leak-O at once.

Price 35c and up

NO-LEAK-O PISTON RING CO., Dept. 376, Muskegon, Mich.



Spring-steel, Oil-tempered Bumpers in Six Complete Styles. Guaranteed Satisfactory Attaching Arms for all Leading Makes of Cars.

We invite comparison in appearance, quality and price.

THE BELLEVUE MANUFACTURING CO., Bellevue, Ohio

Jacobs ROAD-LITE

Lights the way to safety

Lights up the right hand side of road 60 to 70 feet ahead. Can't shine in other fellow's eyes. Invaluable for night driving.

Jacobs Auto Safety Lamp Co., Blacksburg, Va.

"In Stock - Not Over a Day Away"



Write Milwaukee Die Casting Co., Milwaukee, Wis., for name of one of our 500 distributors nearest you.

MILWAUKEE BEARINGS

Thirty-seven BRANCHES

AHLBERG BEARING COMPANY

321 EAST TWENTY NINTH STREET, CHICAGO ILLINOIS



\$700 Profit in One Month

That's what one distributor made. He's only one of many doing a big business. Dealers, too, are making sales by the dozens. Few accessories in recent years have been as popular as the

DUPLEX

Second Spare Tire Carrier & Rim Tool. Carries spare tire—also expands and contracts rim when changing tires. Two tools for the price of one. Write for details.

TRIPP-SECORD & CO.
606 Kerr Bldg., Detroit, Mich.

Holds Chains Tight and Saves Tires

—an exclusive feature of the Chaneeze Improved Anti-Skid Chain Tightener. Self-adjusting tool. Individually boxed—costs no more than ordinary chain tighteners. Easily attached. Retail Price \$1.00 a pair.

Electric Parts Corp.
318 E. Genesee St., Syracuse, N. Y.



Jobbers—Dealers—Write for discounts.

Front-Wheel Brakes

supplied for ANY MAKE of car. Easily installed. Golden repair opportunity. Write for price list and BIG DISCOUNT.

Green Engineering Co., Dayton, O.

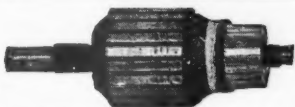
**DON'T****Turn Down a Rewind Job**

Send it to us. We are "Armature Winding Specialists."

Profit for you in our service—Ford generator armature rewind—\$1.95. Other prices in proportion. All work guaranteed. Write for catalog and prices on all generators.

H. M. FREDERICKS CO.,

Lock Haven, Pa.

**YOU can handle this body PROFITABLY****HYMAN PRESSED BODIES**

THE HYMAN PRESSED BODY CO.,

All steel construction provides lightweight with extreme strength. Outlast chassis. One design fills most light truck user's requirements. Ton and Half-ton sizes. Shipped knocked down. Low priced. Distributor and dealer terms liberal. Write.
Huntington, W. Va.

Buick Continues Hall Endorsement

After using Hall Hones for over one year Buick test out the New Hall Hone and approve of it. It is the only Hone endorsed by Buick.

THE HALL CYLINDER HONE CO.
435 Dorr St., Toledo, Ohio

**Cars that sell**

in quantity backed by the squarest dealer contract ever drawn up. Write for details of the Willys-Overland Franchise.

WILLYS-OVERLAND, INC., TOLEDO, OHIO
Willys-Overland Sales Co. Ltd., Toronto, Canada

Styles for all Cars

Gemco BUMPERS
Write For FREE CATALOG No. 31



Made by World's Oldest Bumper Manufacturers

GEMCO MFG. CO.
742 So. Pierce St. Milwaukee, Wis.

KING QUALITY

ALL THE NAME IMPLIES
STEERING KNUCKLE BOLTS AND BUSHINGS
PISTON PINS—PISTON PIN SET SCREWS
KING MANUFACTURING CORPORATION
BUFFALO, N. Y.

S & M Highest Grade—Most Powerful and Durable Spot-Lite Made SPOT-LITES Sold NATIONALLY

By Jobbers

S & M Lamp Co., Inc., 118 W. 36th St., Los Angeles, Cal.

One-Piece SURE-UMIKE Drop Forged COUNTER BALANCED CRANK SHAFT FOR FORDS

Design patented
J. WADSWORTH STAFF,

643 McCormick Bldg., CHICAGO

Big money in this service

Dealers and shops make big money through the control of a franchise which entitles them to the exclusive use of the patented "KLEAN RITE" system of washing and polishing automobiles.

This system has turned a job into an impressive, highly profitable business.

Write for full particulars.

Klean-Rite Auto Laundry Company

1710 East 75th St.

Chicago, Ill.

Pedrick
HEAT-SHAPED
PISTON RINGS

Heat shaped to insure perfect roundness, sold at almost the price of a snap ring.
Wilkening Mfg. Company
15th and Mt. Vernon St., Philadelphia, Pa.



\$5

Wood-Imes

Water Circulating Pump For Ford Cars and Trucks

Is as reliable as the Ford Car itself and assures a positive cooling system that constantly functions. No more overheating—No more freezing in travel—Made engineeringly correct of best materials—quickly and easily installed. Write for Dealer Discounts and complete information.
WOOD-IMES MFG. CO., MINNEAPOLIS, MINN.
Formerly Mid-West Mfg. Co.

MONOGRAM ORIGINAL SELF LOCKING RADIATOR CAP


GENERAL AUTOMOTIVE CORP., 600 W. Jackson Blvd., CHICAGO

PARAFLECTOR

At last—a headlight reflector that makes night driving safe. Write for full details.

The PARAFLECTOR CO., Minneapolis

Biflex Cushion Bumper
for every car



"PROTECTION WITH DISTINCTION"


THE BIFLEX CORPORATION, Waukegan, Ill.

We Make
RADIATOR CORE EQUIPMENT
For the Complete Manufacture of
RADIATOR CORES
Ask Us About This Equipment
We make the best radiator test plug.
RADIATOR ENGINEERING CO.
626 Nesselwood Ave. Toledo, Ohio

WEL-EVER
"OIL CONTROL" PISTON RINGS
The Motor Necessity That Has Made Good
Backed by Seven Years' Satisfactory Service
THE WEL-EVER PISTON RING CO., TOLEDO, OHIO
Sold most everywhere. If your dealer cannot supply you write us.

ALMOND
"STRAIGHT LINE" DRILL CHUCKS
When buying Portable Electric Drills be sure to look for the distinctive ALMOND CHUCK, which may be easily identified by the "STRAIGHT LINE" milling on the chuck body.
Write for complete information regarding the new ALMOND "STRAIGHT LINE" CHUCKS.
T. R. Almond Mfg. Co., Ashburnham, Mass., U. S. A.

ONE DAY BATTERY CHARGING—THIS YEARS BIGGEST MONEY MAKER



Only \$35 cash brings you complete HB 8 hour battery charging outfit. Easy monthly terms; let your profits pay balance with nice surplus besides. 30 days' free trial on money-back guarantee. Start now to make big profits. More HB's in use than any other make. Write today for information. Hobart Bros. Co., Box AR 11, Troy, Ohio.

ONLY \$35 COMPLETELY EQUIPS YOUR SHOP FOR HB ONE-DAY BATTERY CHARGING SERVICE

Let us send you our FREE Catalogue on

Huetter's
Fly-Wheel Gear Bands

Huetter Machine & Tool Co.
546 Kentucky Ave. Indianapolis, Ind.

INSHIELD DRIVING LIGHTS
INSIDE THE WINDSHIELD—NO GLASS TO CUT



INSHIELD 8
4 1/2 in. diameter. Heavy Nickel or Black Enamel. Made of heavy sheet brass. 21 c. p. Mazda precision type tipless bulb, silver, triple-plated reflector \$7.50

INSHIELD SENIOR
5 1/2 in. diameter. Nickel finish only. Simplest and best inner-controlled driving light made. \$10.00

The Inshield Products Co., Toledo, Ohio
Formerly the Thal & Bitter Machine Co.
Patented Oct. 30, 1923


LINCOLN
FOR ALL CARS—\$15 to \$36
SHOCK ABSORBERS

STONE TIRE CARRIER
No interference with tail light or tire covers. \$3.00 complete for s.s. rims; \$2.50 for Ford Clinchers—\$1.00 Ford lug type. At all dealers.
THE STONE MANUFACTURING COMPANY
1502 S. Michigan Ave. Chicago 135 Wooster St. New York

BURD GILMAN SHOCK ABSORBER
The Perfect Snubbing Device with the Steel Cable
Distributors Everywhere
Burd High Compression Ring Co., Rockford, Ill.




MaLee **ADJUSTABLE AUTO-HONE CYLINDER GRINDER**
CRANK PIN RE-TURNING TOOL
The Auto Hone Co., Buffalo, N. Y.



CONNECTICUT IGNITION



Noiseless Timing Gears
Install quietness — Cloyes NOISELESS Timing Gears. They give the motor a soft, even "purr"—permanently.
Cloyes Gear Works
1614 Collamer Ave., Cleveland, O.
Sales Representatives
United Autoware Co., Flak Bldg., New York City
N. Lowenthal, Box 952, Ft. Worth, Texas




KISSEL The Aristocrats of Motordom
The Custom Built Car
7 Models—Open and Closed
Distributors in principal cities. Open territory now being closed.
Kissel Motor Car Co.
Hartford, Wis.



The "Big Four" A complete car washing service.
RUBBER COVERED—IMPOSSIBLE TO INJURE CAR.
Used in connection with our Little Giant Water Savers, or can be applied to any 1/2 in. or 3/4 in. valve.
Rubber Nozzle—for full water flow.
Spray Nozzle—for general purposes.
Spout Nozzle—for cutting mud from fenders, etc.
Slot Nozzle—a sheet of water covering a large surface with force.
PRICE—Set of four Nozzles, \$2.00 less dealers discount
The Gaylord Manufacturing Company
Paterson, N. J.



Stevens **SPEED UP** **Tools**
OVER 100 ACCURATE SHORT-CUTS TO GOOD WILL AND PROFIT ~ ~
Ask for Shop Catalog "Thru your jobber - his service is economy"
STEVENS & COMPANY
375 BROADWAY - NEW YORK



Battery Plates

CONTINENTAL BATTERY CO.,
3201 Papin St., St. Louis, Mo.

R.I.V. Means Quality
in Every Language



250 West 57th St.

New York City



Real High Tension Ignition for Ford Cars

Varley coils eliminate nearly all chronic ignition trouble. Save gas. Add power. Keep plugs clean. Stop misfiring. Save repairs. \$2.50 each. Write for full particulars.

The Autocoil Co., Jersey City, N. J.

DO MOTOR RE-CONDITIONING AND EARN BIG MONEY!

You can ream and hone an average cylinder block the factory way in fifty minutes. Do the work without removing the engine, quickly, efficiently and economically. All you need is

FOSTER-JOHNSON Re-Conditioning Equipment

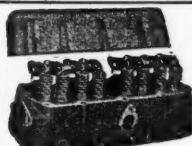
Cylinder and Piston Reamers, Hones, Kylin General Purpose Reamers and Reamer Sharpeners, all included.

Write for Foster-Johnson Station Manual and Tool Catalog

FOSTER-JOHNSON REAMER CO.

1310 Beardsley Avenue.

Elkhart, Ind.



Frontenac
CYLINDER HEAD

PERFECT PERFORMANCE

The remarkable showing of the three Fronty-Fords in the 500 mile race was due solely to the Frontenac Cylinder Head. This head is adapted for use on YOUR Ford by its designer and builder, Arthur Chevrolet. Book, "How to Build a Fronty-Ford," \$2; free with orders of \$50 or more. Write for FREE catalog.

CHEVROLET BROS. MFG. CO.

410 W. 10th St. INDIANAPOLIS, IND.

RAMCO Cushion INNER RINGS

fit behind piston rings and keep them in perfect contact with the cylinder walls at any motor speed or temperature.

RAMSEY ACCESSORIES MFG. CORP., ST. LOUIS, MO.



140 Combinations —all in this ONE set

Everything you need, in one small box, compact, accessible, and a real mechanic's outfit. Sockets will not break. Fully guaranteed. Ask your dealer or write us.

The Eastern Machine Screw Corp.
10-20 Barclay Street, New Haven, Conn.

Lorentzen Headlight Kontrol

AN AUTOMOTIVE
NECESSITY THAT SELLS

LORENTZEN HEADLIGHT KONTROL, INC.
60 Grand St. New York City



THE QUINCY SILENT AIR-MASTER

The Most Air Per Dollar Cost

WALL PUMP & COMPRESSOR CO.

Quincy, Ill., U. S. A.



BUTLER SPRINGS AND THE ACE OF CLUBS ALWAYS WIN

Butler Springs are made of very fine grade steel. They are carefully heat treated and tested for hardness and strength.

Order your Ace of Springs today.

BUTLER AUTOMOTIVE SERVICE CO.
101 D. ST. EASTON, PA.

"CONNEAUT" Plastic Metallic Packing

Patented

Stops the leaks in automobile water pumps. Mold it with your fingers. Makes a smooth metal bearing—adjustable and practically frictionless. At your Jobbers—Get it today. It does the trick. Put up in 1 lb. cans. If your Jobber doesn't carry it, write us direct. Price \$1.65 per pound, f. o. b. Conneaut, Ohio.

The Conneaut Packing Company

Conneaut, Ohio



IT'S EASY TO SELL

"The only oil ring with a
mileage guarantee"

"Sav-Oil" is stamped on bottom of every ring

The Sav-Oil Ring Mfg. Co.

1037 S. Figueroa St., Los Angeles

ECLIPSE Safety SHADE

Instantly adjusted to any desired shading position with one hand from driver's seat. Makes night driving safe. One size for all cars. Write at once for our plan of distribution and full details.

SUBURBAN TRANSIT CO.,

Plainfield, N. J.

Subsidiary of Spicer Mfg. Co.



BRAKE LININGS and CLUTCH FACINGS

Always used where safety and service are the first and only consideration.

KELSO MFG CO.,

TRENTON, N. J.



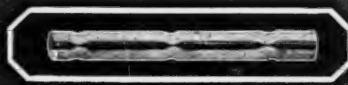
Outperforms any
car in its class

GARDNER

BUILT BY THE GARDNER MOTOR CO.—BUILDERS OF VEHICLES SINCE 1882

KESTER Hard-Core WIRE SOLDER

"REQUIRES
ONLY
HEAT"



SAMPLE
FREE

CHICAGO SOLDER CO., 4201 Wrightwood Ave.

The Broadcaster

A Department that will Find What You Want

If you don't find what you want here,
your advertisement here will find it
for you

This Broadcaster Department serves a real purpose in the industry by affording a central clearing house for all kinds of business wants. It will help you to get a position or secure competent assistants or executives; get agents or agencies, representatives or accounts. It will find a partner or financial backing. It will secure more business for you or sell your business at a fair price. It will help you to dispose of dead or slow-moving stock, sell equipment or machinery you no longer need, or it will find a new plant or factory for you. It is of special value for auction notices, the sale of books, patents, parts, industrial sites and business opportunities of all kinds. This advertising is the opportunity advertising of the industry. It is inexpensive, quick-acting, result-producing. Have you tried it?

PARTS and REPAIRS

HOUSE OF A MILLION AUTO PARTS

THE LARGEST STOCK OF NEW AND USED CAR AND TRUCK PARTS IN THE WORLD. WE HAVE EVERYTHING.

New and Used Motors, Gears, Axles, Bearings, Springs, Magneto's, Generators, Clutches, Starters, Universal Joints, Radiators, Cushions, Wheels (Wood, Disk, Wire,) Carburetors, Piston Rings and Pins, etc.

Always mention model and serial number in order.

Write us. All inquiries answered promptly

DOUGLAS AUTO PARTS CO., INC.
2003-5-7-9 South State St. Chicago, Ill.

DOWMETAL PISTONS

Lighter, stronger, and longer wearing than aluminum or iron. Can be fitted with bronze bushings in the wrist pin holes same as in iron pistons. Dowmetal has no permanent growth. The expansion is little more than iron.

SEND FOR PARTICULARS

LAMMERT & MANN CO.
Cylinder and Crankshaft Grinding
215-21 N. Wood St. CHICAGO Phone West 4918

ANY PART
for
ANY CAR
NEW
or
USED

Send for Catalogue
Cincinnati Auto Parts
& Wrecking Co.
712-714 Walnut St.
CINCINNATI, OHIO
Parts our middle name

AUTO Save 50 — 90% 2000 Models PARTS

NEW AND USED GEARS, AXLES, BEARINGS, SPRINGS, MAGNETOS, GENERATORS, ETC. JOBBERS IN BANKRUPT AUTO SUPPLIES.

BRIGHTMAN AUTO EXCHANGE
321 Windsor Ave. HARTFORD, CONN.

INFORMATION

Six cents a word is the rate for all undisplaced advertisements set solid, regular want ad style; all capitals, 9c. a word; all capitals leaded, 12c. a word; minimum charge \$1 an insertion; payable in advance (see next paragraph).

Ten per cent discount if one payment is made in advance for four or more consecutive insertions. Advertisements other than "Positions Wanted" will be billed monthly if run more than four times.

Add five words for address if replies are to come to a box number address at any of our offices. These replies are forwarded each day as received, in new envelopes, at no extra charge.

Refund will be made if all insertions ordered are not needed, the amount refunded being the difference between cost of insertions given and full amount paid.

Telephone orders must be confirmed in writing same day. No allowances can be made for errors of any kind unless prompt notification is sent us.

When replying to blind ads be careful to put on your envelope the correct box number and do not enclose original letters of recommendation—send copies.

Displayed advertisements are sold by the inch. Rates will be furnished upon application.

The right is reserved to refuse any advertisement and also to rewrite and edit copy furnished whenever the publishers consider it advisable to do this.

THE BROADCASTER DEPARTMENT

THE CLASS JOURNAL COMPANY

239 W. 39th St., New York
5 S. Wabash Ave., Chicago

PARTS and REPAIRS

AUTO PARTS

SAVES 50% TO 75% ON ALL CARS

New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or Write

INDIANA AUTO PARTS CO.

316-18 NO. ILLINOIS ST. INDIANAPOLIS, IND.
LARGEST CAR WRECKERS IN INDIANA

PATENTS and PATENT ATTORNEYS

PATENTS

BOOKLET FREE HIGHEST REFERENCES
PROMPTNESS ASSURED BEST RESULTS

Send drawing or model for examination and report as to patentability

WATSON E. COLEMAN, Patent Lawyer
644 G. Street, N. W., Washington, D. C.

Attorney-at-Law and Solicitor of Patents

C. L. PARKER

Formerly Member Examining Corps, United States Patent Office

American and foreign Patents secured. Searches made to determine patentability and validity. Patent suits conducted. Pamphlet of instruction sent upon request.
McGill Building, WASHINGTON, D. C.

PATENTS

Secured, Trade-marks and Copyrights Registered

Prompt service, Highest references. Established 1884.

Milo B. Stevens & Co. Registered Patent Attorneys
Offices 639 F. St., Washington, D. C. 10 Monadnock Block, Chicago. 341 Leader News Bldg., Cleveland, O.

MISCELLANEOUS

FOR SALE—Prosperous Garage in brick building on Dixie Highway in Illinois, with Chevrolet Agency. 125 cars sold in last four months. Well equipped shop and fine sales room. Handle a full line of tires, oil and accessories. Room for 60 cars in storage. Good reasons for selling. Address Box 6172, care Motor Age, 5 S. Wabash Ave., Chicago, Illinois.

FOR SALE—Garage and Ford agency in Southwest, one hundred car contract, stock and equipment will invoice about \$15,000. Only three used cars, several of largest oil companies leasing and drilling in neighborhood, only cash deal considered. Box 6174 care Motor Age, 5 S. Wabash, Chicago, Ill.

FOR SALE—Isotta Fraschini Racing Motor 4-cylinder 16-valve overhead cam, \$350.00. Also Maximotor 4-cylinder Ball Bearing Crank Shaft 4 1/2 x 5, \$200.00. J. M. Herod. 4506 Forsyth Ave., East Chicago, Ind.

FOR SALE—Garage 32x60, on Yellow Stone Trail. No opposition. Authorized Ford and Chevrolet Station. Stock building, tools, \$3500. Have other interests. Address Box 6175 care Motor Age, 5 S. Wabash Ave., Chicago, Ill.

ADDRESS: FORD RIDEASY, 223 Grand Ave., W. Detroit, Michigan. Absolutely kills the chatter shocks and iron out the rocking rebounds.

MISCELLANEOUS

MISCELLANEOUS

One of the oldest and best known firms of Battery makers in England have perfected a process of making moulded composition boxes (or jars) for batteries. These moulded cases have been used by them in their output for some years. The product is believed to be the best of its kind and cheaper than other similar productions. Some of the leading battery makers in Europe have taken up the rights for their particular country. The American rights are now to be offered for sale to suitable people who have facilities for making and selling large numbers of battery boxes, such as battery makers or firms who are suppliers of battery cell cases. For further particulars write,

Box No. 6182, care of Motor Age
5 South Wabash Ave., Chicago, Ill.

SITUATIONS WANTED

SITUATION WANTED—District Sales Manager Southwest Territory Kansas City Headquarters. Well acquainted with automotive hardware and electrical jobs. Eight years experience in merchandising goods through this trade. Now established here. No other territory considered. Address Box 6179, care Motor Age, 5 S. Wabash Ave., Chicago, Ill.

SITUATION WANTED—As Service Superintendent or Manager in a first class Motor Agency, by a man with 12 years experience. Can get results. Address Box 6180, care Motor Age, 5 S. Wabash Ave., Chicago, Ill.

SITUATION WANTED—Service Foreman of going concern wishes to change location; A1 mechanic; present location six years; confidential. Address Box 6181, care Motor Age, 5 S. Wabash Ave., Chicago, Ill.

AGENTS AND DISTRIBUTORS

EXCLUSIVE AGENTS: WE HAVE AN AGENT IN EVERY TERRITORY TO SELL THE FAMOUS K-W ROAD SMOOTHERS, A COMBINED SHOCK ABSORBER AND SNUBBER FOR FORD CARS. SET OF FOUR SELLS TO CAR OWNER FOR \$20.00. WILL MAKE ARRANGEMENTS WITH RIGHT PARTY FOR EXCLUSIVE TERRITORY TO SELL FORD OWNERS, DEALERS AND GARAGES. SEND FOR LITERATURE AND WRITE US ALL ABOUT YOURSELF. THE K-W IGNITION CORPORATION, DEPARTMENT "B", CLEVELAND, OHIO.

RADIASHIELD—\$10

The greatest of Metal Radiator Fronts

Rated Distributors and Distributing Salesmen wanted in every section. A year's income for three months' work.

RADIASHIELD, INC.
30 Church St., New York

DISTRIBUTORS WANTED—Wonderful Vapor Humidifier and gas saver will increase mileage of auto, truck or tractor. 200% profits. Exclusive agent with car wanted in each county for demonstrating. Progressive repair shops and service stations acceptable as agencies. W. G. Critchlow, Box 427, Wheaton, Ill.

If you need good men in your business
If you are looking for a better position
If you want to buy or sell used machinery

**The Broadcaster Department
will help you**

"NORMA"

BALL BEARINGS

PRECISION BEARINGS

HOFFMANN

ROLLER BEARINGS

THE NORMA COMPANY OF AMERICA
ANABLE AVE., LONG ISLAND CITY, N.Y.

The Most Logical
Innovation in the Motor
Lamp Industry

Two New K-D Successes

K-D Driving Light

—a real glow light
—not a spot lamp.

At last, a driving lamp that sheds a beam of light where motorists want it. Strongly constructed to give plenty of service. Fastens on any flat surface of car—practical on any make.

Nickel and black combination in drum type.

The K-D
Lamp Co.
Cincinnati, Ohio



Includes two sets Brackets

No. 200 Stop Lamp

Press the brake and out flashes the word "Stop." Built to meet any and all competition. Priced to sell in a hurry and give quick turn-over.

Made in one piece from suitable gauge steel, black enamel baked on. Brass door, polished and nickel plated. Special amber lens showing "stop" when brake is applied. Enclosed type switch. Packed in individual cartons.

A line brings samples and prices.

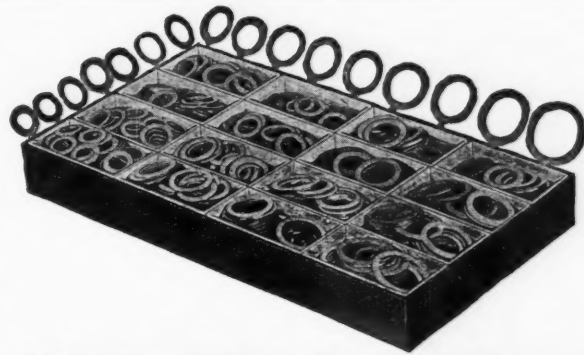
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850 Steel Spacing Washers

17 sizes—50 of each size per box. Inside diameters from $\frac{3}{8}$ to 1 inch, .015 thick. This assortment made for adjusting end play in all makes and types of starting motors and generators. Largest washer illustrated made to go in the front end plate of Ford generator. Lateral motion thus adjusted without removing bearing from armature shaft.

Mailed, post paid, per box, \$3.50.

If not handled by your jobber, order from us.

Any size or sizes used, can be replaced.

ARMATURES: We rewind any and all kinds of GENERATOR, MOTOR and MAGNETO armatures, and reship same day old armatures received.

FORD GENERATOR AND MOTOR ARMATURES \$ 1.50

ALL SMALL DOUBLE UNIT GENERATOR AND MOTOR ARMATURES 5.00

SINGLE UNIT MOTOR GENERATOR ARMATURES 10.00

MAGNETO ARMATURES \$3.75 to \$4.75

Armature Rewinding Co., Inc.

3301 Washington Blvd., St. Louis, Mo.



It comes
in 100 ft.
Lengths

Cable in Packages

The Goodrich method of packing ignition, starting or lighting cable in 100 foot packages facilitates stock keeping and helps dealers to give their customers better, quicker service.

Just cut what is needed from clean stock, the rest is kept clean, handy and ready when needed again! We make a complete line of

wires and cables for all classes of motor-driven vehicles—suitable to meet every need.

Jobbers: Our sales helps are complete, including catalogue, insert pages, counter literature, electrotypes and sample outfits for salesmen. Write.

The Goodrich-Lenhardt Mfg. Co.
22 Pine St., Hamburg, Pa.

Goodrich
AUTOMOTIVE EQUIPMENT
Cable

3 marks of distinction!



1 THE MULTI-MEMBER TREAD design that allows proper flexing and counters any skidding force.

2 THE TRIPLE-RIBBED CENTER permits Kokomo Balloons to be steered as easily as high pressure tires.

3 THE SIDEWALL "BUM-PERS" prevent curb chafing and lateral shocks. An important "Long-Life" advantage.

The merchant who sells KOKOMO BALLOONS cannot show his customer their inside goodness. The Quality that underlies the tread of any tire can be demonstrated only by driving experience.

But balloon cord sales are made easier for the Kokomo merchant by three EXTERIOR marks of distinction: (1) The multi-member tread; (2) The triple-ribbed center; (3) The sidewall "bumpers."

And he may make these easy sales with the assurance that Kokomo Balloon Cords possess the sound inner structure that has marked Kokomo Tires for three decades.

Write—and let us tell you more about them!

Kokomo Rubber Co.
KOKOMO, . . . INDIANA

LONG~LIFE
Kokomo
Balloons

Good Work MARMON!

NORDYKE-MARMON CO. STARTS BIG PROGRAM

Will Increase Production by 50
Per Cent.

LABOR OUTLAY \$4,000,000

Operations at the Indianapolis plant of the Nordyke & Marmon Company, Kentucky avenue and Morris street, were begun on an enlarged scale this week to conform to a program for 1924 which seeks to increase production of Marmon cars 50 per cent. over the volume maintained last year.

Preparations for the rearrangement of plant facilities to provide for a progressive flow of materials to eliminate duplication of work and to speed up manufacturing operations generally. Work has been under way for several weeks under the direction of G. M. Williams, who recently was elected president of Marmon, who was made chairman of the board of directors. Skilled mechanics have been employed at the rate of 100 a day until the force now numbers 1,000. This is to be increased to 2,500 as rapidly as the men can be recruited.

Outlay of \$5,500,000.

The new program will require an outlay for labor alone of \$4,000,000. About



1,000 Men Now Working
1,500 More Jobs Waiting
50% Production Increase
Over 1923
\$4,000,000.00 Annual
Payroll
\$5,500,000.00 Additional
for Material
GOOD WORK, MARMON!

From Indianapolis News
Thursday, Aug. 21, 1924.

The Nordyke & Marmon Company has faith in Indianapolis—has faith in the motor car business—has faith in the present and future prosperity of America.

[The Indianapolis News offers this as an example of the aggressive policy which will win for American business.]

Reprint of Advertisement run by
The Indianapolis News



Ring
Prices
Above
up to
and
Including
Four
Inch

When making ring replacements use GILL Rings. When making complete installation of **Pistons, Pins and Rings**, there is a Complete Gill Unit to fit the job.

There are millions of cars that need only this Complete Gill Unit with some additional bearing work to recondition them for many thousands of miles more service.

Sell owners the idea that they should get more mileage out of their car.

GILL Rings, Pins and Pistons will help him get it out.
YOU PROFIT

GILL MANUFACTURING CO.
8300 South Chicago Ave. CHICAGO

From
Jobbers
and
Dealers
Every-
where



Gill



Rings, Pins *and* Pistons